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ABSTRACT

A comprehensive review of the literature regarding the impact of college on students has indicated that the most striking principle in these studies is the tendency of initial differences in characteristics among groups entering diverse settings to increase over time. The purpose of the present study is to investigate this phenomenon of accentuation by analyzing the nature of its occurrence and the distinctive processes that account for its existence at both the group and individual level. The study is an exploratory one designed to test the adequacy of two alternative models of accentuation that change at the two levels. Using several data sets, this study assesses the extent to which accentuation does occur at each level and the nature of the relationship between the different types of accentuation across the two levels. The analyses in this study demonstrate that when accentuation is found, there is no consistent relationship between the pattern of selection and change at the individual level, indicating that neither of the models had any explanatory power for the processes at work in the data sets. (Author)

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Final Report

THE PROCESS OF ACCENTUATION IN COLLEGE SETTINGS

National Institute of Education
Project No. 3-2083

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U.S. Department of
Health, Education and Welfare

Final Report

THE PROCESS OF ACCENTUATION IN COLLEGE SETTINGS

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William E. Moore

Survey Research Center
Institute for Social Research
University of Michigan
Ann Arbor, Michigan

1976

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ABSTRACT

A comprehensive review of the literature regarding the impact of college on students has indicated that the most striking principle in these studies was the tendency of initial differences in characteristics among groups entering diverse settings to increase over time. The purpose of the present study is to investigate this phenomenon of accentuation by analyzing the nature of its occurrence and the distinctive processes which account for its existence at both the group and individual level.

The study is an exploratory one designed to test the adequacy of two alternative models of accentuation which suggest very different relationships between selection and change at the two levels. Using several data sets that had previously been gathered for more general purposes, this study assesses the extent to which accentuation does occur at each level and the nature of the relationship between the different types of accentuation across the two levels.

The analyses in this study demonstrated that when accentuation was found, there was no consistent relationship between the pattern of selection and change at the group level and the pattern of selection and change at the individual level, indicating that neither of the models had any explanatory power for the processes at work in the data sets.

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INTRODUCTION

A comprehensive review of the literature dealing with the impact of college on students, published several years ago by Feldman and Newcomb (1969), indicated that the most striking principle in these studies was the tendency of initial differences in characteristics among groups entering diverse settings to increase over time. In the course of their review they reported that no single principle had emerged in so many different guises in the research on college impact as that of the accentuation of initial differences.

The basis of this accentuation of initial group differences, they suggest, lies in the potential for initially prominent characteristics of individuals to be accentuated over time. The statement of the general proposition which they offer takes the following form:

> "Whatever the characteristics of an individual that selectively propel him toward particular educational settings - going to college, selecting a particular one, choosing a certain academic major, acquiring membership in a particular group of peers - those same characteristics are apt to be reinforced and extended by the experiences incurred in those settings."

Since the accentuation of initially prominent attributes was not an invariant result in the research studies which they reviewed, the authors suggest that this principle should be stated conditionally: if individuals having certain characteristics choose a setting in which those characteristics are prized and nurtured, then accentuation of the characteristics is likely to occur.

What the review of the literature regarding the impact of college on students suggests is that the processes by which educational settings exert an influence on the students within them are interdependent with the processes by which these students are initially attracted to and selected into the diverse educational environments. What remains to be clarified is the nature of this relationship between selection and change, and it is this issue which forms the central focus of the present study.

The purpose of this study is to extend the work of Feldman and Newcomb regarding the phenomenon of accentuation by examining the extent to which accentuation does or does not occur and by analyzing the processes which account for this phenomenon. This study suggests that although the phenomenon of accentuation of initial group differences has been amply documented, the underlying processes which account for it remain to be explored and that the extent to which accentuation at the individual level contributes to the group phenomenon is still a

matter for investigation. It is necessary then to distinguish between accentuation at the group level and accentuation at the individual level and to recognize that inquiry into these processes involves different sets of questions.

The specific issues which this study seeks to explore are thus the following:

1. What are the patterns of selection and change at the group level, and to what extent is the accentuation of initial differences among groups entering different educational settings evident?

2. What are the patterns of selection and change at the individual level, and to what extent does individual accentuation occur?

3. What processes serve to account for accentuation at either the group or individual level, and what role does the accentuation of initially prominent characteristics of individuals play in the phenomenon of accentuation of initial group differences?

An exploration of these issues serves to illuminate not only the specific phenomenon of accentuation but also the nature of the relationship between selection and change in college settings in general.

THE RESEARCH LITERATURE

The research literature which bears on the question of accentuation in college settings includes those studies in which evidence of accentuation has been found, recent studies which have specifically investigated the phenomenon of accentuation, and theoretical and empirical studies concerned with methodological problems encountered in the measurement of change.

The Discovery of Accentuation in College Impact Studies

In their review of research studies that might provide evidence of a differential impact of different colleges on students, Feldman and Newcomb (1969) reported that in most of the studies they surveyed, the diversities among student bodies were amplified during the college years. They cited a number of studies (Wickenden, 1932; Nelson, 1940; Trent, 1967; Clark et al., 1972) which demonstrated an accentuation of differences in religious orientation on the part of students entering distinctly different types of colleges. An accentuation of initial diversity with respect to political and economic orientations was found in several studies as well (Nelson, 1938; Newcomb, 1943; Miller, 1958; Clark et al., 1972). One study (Gurin & Katz, 1967) even provided evidence of the accentuation of initial differences among colleges with respect to students' occupational aspirations. They reported that an increase in initial differences in authoritarianism was also found in several studies (Brown & Bystryn, 1956; Trent, 1967; Clark et al., 1972), although it was not as strong or consistent a trend as those in the results of studies focusing on the religious or political dimensions.

One of the most striking instances of accentuation of initial group differences which they found was that reported by Huntley (1965) in his study of differences in students' scores on the Allport-Vernon-Lindzey Study of Values measures when the students were grouped according to major fields. Huntley had found that students in different major fields at a particular college had been different on those measures upon entrance to college and that those initial differences tended to become accentuated over the four years of college. A review of additional studies providing data about changes in initial major field differences indicated that accentuation of initial group differences was the predominant pattern.

Their review of research also indicated that accentuation of initial group differences could be found among groups of students entering different types of residences. One study (Fritz, 1956) was reported which compared differences in attitudes between fraternity and non-fraternity groups at one college and found an increase

in those differences over time. An additional study (Miller, 1959) presented evidence of an accentuation of differences in political and economic attitudes between fraternity members and independents across a number of colleges. Several other studies, on the other hand, failed to show a clear pattern of accentuation of differences between residential groups.

There appeared to be evidence as well of accentuation at the individual level. In a follow-up to his earlier report Huntley (1967) had pointed out that there was evidence for an accentuation of a student's central value during the four years of college. The reviewers hypothesized then that accentuation at the group level was due to an accentuation of initially prominent characteristics of individuals. They did point out, however, that the only study (Dressel & Mayhew, 1954) that provided data on gains of students classified by initial level found that within each college the initially higher sub-groups of students made the smallest gains and that the initially lower sub-groups of students made the largest gains, indicating that the observed accentuation of initial differences among colleges was not due to a tendency for initially higher students to make greater gains.

Recent Documentation of Accentuation

A number of studies published since the review by Feldman and Newcomb have provided further evidence of the phenomenon of accentuation. A study (Newcomb et al., 1970, 1971) of selection and change among students entering a residential living-learning arrangement compared to those in the traditional undergraduate program at a major university reported that initial differences in the attitudes and personalities of the two groups were accentuated. Additional analyses of that data set (Lacy, 1975) confirmed the accentuation of initial group differences and illuminated the processes that accounted for the differential gain in the two settings, demonstrating that the effects of the college environments were mediated by the patterns of student interaction with faculty and peers. Another study (Coan, 1972), which compared patterns of student development in residential and traditional units at that same university, predicted that accentuation would occur on several measures differentiating students in the two groups but found an increase in differences on only one dimension.

Several studies have focused further attention on the accentuation of differences between major fields. One study (Franks, 1973) compared students in two different major fields on several value dimensions and found that the fields attract students with different values and that the differences between the groups increase with the length of exposure to the major. Another study (Athanasiou, 1971) noted the accentuation of initial differences among sub-groups of students within a single academic major, showing that students who eventually transferred

out of the field tended to be somewhat different initially from those who persisted and that these differences tended to increase over time. A study by Thistlethwaite (1969) emphasized the importance of distinguishing between the effects of recruitment to and attrition from major fields and the effects of actual change on the part of students in those fields and focused attention on patterns of development in intact cohorts of students. He found increasing differentiation between such cohorts of students in different major fields with respect to reported college press and interpreted this as illustrative of accentuation of initial major field differences.

Two longitudinal studies of student development in quite different college settings have provided further insight into the phenomenon of accentuation. A series of reports by Chickering (1970, 1971, 1973) presented the results of a study of students entering 13 diverse small colleges and noted that accentuation of initially prominent characteristics of individuals did not invariably occur among students in the study. He found that the magnitude and direction of change on the part of similar individuals entering different institutions varied considerably and was systematically related to differences in the institutions. This suggested that change on a dimension was not a function of an individual's absolute standing on the measure but rather his standing relative to the value climate of his environment. In commenting upon this study, Gurin (1971a) pointed out that these results support the view of Feldman and Newcomb that the dominant climate of a college not only attracts students with certain characteristics but also has a greater impact on those same characteristics. The distinctive contribution of Chickering's studies is his suggestion that differential gain among colleges occurs as a function of the fit between individuals and their institutions.

A report by Clark et al. (1972) presents the findings of a study of student selection and change in 8 different institutions. The authors reported instances of minimization of group differences as well as accentuation and suggested some conditions associated with each type of change. A pattern of minimization of initial differences occurred with measures of educational and occupational values. The authors noted that these values represent the values of academia and reflect a general consensus among faculties across all colleges. The impact of different colleges on these dimensions would thus be consistent, leading to common patterns of change and a minimization of differences. A pattern of accentuation of initial differences, on the other hand, was found on measures of religious, political and general cultural values, values for which there is not a consensus within the academic world. The differences between faculties on these dimensions can thus be expected to lead to increasing differences among groups exposed to different college environments.

A series of reports by Walsh and his associates (Walsh & Lacey, 1969, 1970; Walsh et al., 1972) have provided further evidence of the accentuation of individuals' initially prominent characteristics. They analyzed the relationship between students' dominant personality orientation as conceptualized in Holland's theory of personality types and the students' self-reported change during college. Their findings suggest that extension of these personality characteristics does occur and is associated with the amount of time spent in an environment or college major.

Studies Investigating the Phenomenon of Accentuation

There have been several studies in recent years that have addressed themselves directly to the phenomenon of accentuation and provided additional insight into its dynamics. A major study by Thistlethwaite (1972, 1973) was designed specifically to clarify the findings of accentuation of initial major field differences. He had noted that accentuation cannot be attributed to the effects of exposure to major fields unless the effect of differential recruitment is ruled out, so he focused his attention on the patterns of change among panels of students who remained in a particular major field. His predictions concerning differential accentuation of major field differences across a number of colleges were generally confirmed for measures of college environment but not for measures of attitudes. He hypothesized that the failure to find the expected accentuation of attitudinal effects might be due to collegiate or societal influences which may have obscured the effects of exposure to major fields; yet upon further analysis he found that the evidence did not support this interpretation of his results.

A paper by Newcomb (1973) reviewed several earlier studies that had provided evidence of accentuation and analyzed the factors that might account for the appearance of accentuation in some instances and not in others. He proposed that there might be several basic conditions necessary for accentuation to occur. Among these would be a discrepancy between the initial position of students entering a setting and the local norms of faculty and/or older students in the setting, a similarity of local and culture-wide influences, the opportunity for awareness of others' attitudes on the particular characteristic, and personal characteristics reflecting openness to change on the part of the students.

Another study (Moore, 1973) sought to clarify differences in the use of the term 'accentuation' and presented some preliminary analyses exploring the nature of the interrelationship of accentuation at different levels. The analyses indicated that in one data set where rather consistent evidence for the accentuation of initial group differences had been found, there was evidence against the assumption that this would be based on accentuation at the individual level. The results of this study led to the development of the present study.

A recently published study (Feldman & Weiler, 1976), begun at the same time as the present study, has provided clarification of the conceptual and operational meanings of the term 'accentuation' as well as additional data regarding its existence. The authors outlined six major patterns of change within groups that might underlie an increase in initial differences between groups and examined the applicability of these models of change to data from a longitudinal study of student development at one university. They examined changes in group differences among students in different major fields, distinguishing between primary and secondary recruits to the majors, to determine the extent to which accentuation could be found based on patterns of change within initial groups. Their analyses indicated that there was little evidence of accentuation of differences on the part of primary recruits, although there were instances of accentuation for the full samples. The analyses also indicated that the patterns of change within groups varied from group to group and were not consistently associated with patterns of change between groups. They suggested that their analyses highlighted the fact that accentuation of initial group differences is only one of many patterns of change and stability of initial differences among groups.

The Measurement of Change

The fact that accentuation has to do with the relation between selection and change means that any investigation of this phenomenon must deal with issues raised by methodological problems in the measurement of change. The problems in measuring change center in the fact that obtained measures of change represent only approximations of the actual change which individuals experience. Problems of unreliability and measurement error create biases in obtained differences in scores and produce a spurious negative element in the correlation between initial scores and change scores due to an inverse relationship between errors in the two scores.

A series of papers (Bereiter, 1967; Lord, 1967; Bohrnstedt, 1969; Feldman, 1969, 1972) has discussed these problems in detail and suggested alternate ways of dealing with them. Conceptual clarification of the nature of different types of change measures and their relative validity has also been provided in a recent study (Hockman, 1972). Several earlier studies suggested means for estimating an individual's true gain score for use in place of the observed gain scores (Lord, 1956, 1958; McNemar, 1958).

A number of studies (Kanter & Brown, 1968; Cronbach & Furby, 1970; O'Connor, 1972; Marks & Martin, 1973), noting the inherent difficulties in the use of any form of change scores, have questioned the need to use measures of individual change as dependent variables and suggested the value of other conceptual approaches.

The alternative approaches put forth within the field of college impact studies have been reviewed by Feldman (1970a, 1970b). These approaches include an input-output model using part-correlational procedures (Astin, 1963, 1964, 1965, 1968; Astin & Panos, 1969; Nichols, 1964, 1967), a probabilistic model (Richards, 1966, 1968) which measures effects in terms of different probibilities of change, methods which use regression analysis for partitioning explained variance in outcome variables (Werts, 1968; Werts & Watley, 1968; Creager, 1969; Astin, 1970), and the use of path analysis (Feldman, 1971; Werts, 1967, 1968; Werts & Watley, 1969). Each of these approaches avoids the problems involved in change measures by directing their attention to measures of outcome. No single one of these general approaches represents the one best way of analyzing any set of data, however. Each of the procedures, it has been pointed out (Feldman, 1970), asks somewhat different questions and makes different assumptions about the nature of the underlying phenomena.

The use of outcome measures has been challenged, however, by those who insist that the dependent variable of college impact studies should not be outcome but change. A series of articles by Richards (1966, 1968) has presented a simple analytic model for the study of college effects which makes use of change measures while critically evaluating other techniques. A recent study of his (Richards, 1975) used simulated data to assess the correlation between several estimates of average student change and the true impact of the school environments and concluded that simple gain scores measure the true situation about as accurately as other change estimates.

The concern of most studies in this area, it should be noted, has to do with the question of whether different colleges or sub-groups within colleges have an impact on students over and above differences which are due to the processes of initial recruitment or selection. The problem with which they tend to be concerned is that of separating out or controlling for those influences associated with selection so that they can arrive at a measure of the true effect of the collegiate environment. The concern of the present study, however, is not with controlling for the effects of selection on change but rather with examining the relationship between selection and change and the manner in which this produces the phenomenon of accentuation. It is this focus which distinguishes this project from the general trend of recent studies in the college impact area.

THEORETICAL AND CONCEPTUAL BACKGROUND

The research literature dealing with accentuation raises important theoretical and conceptual issues. The discussion below endeavors to clarify the concept of accentuation, place accentuation within the context of other possible changes in group differences, and suggest two alternative models for explaining the process by which accentuation occurs.

The Conceptualization of Accentuation

Implicit in the discussions of Feldman and Newcomb is a model of accentuation which serves to characterize this phenomenon at both the individual and the group level. The model might be diagrammed as follows:

Figure 1

Individuals Relatively High On Given Characteristic
Selection
Setting Which Nurtures Given Characteristic
Accentuation Of Characteristic
Individuals Even Higher On Given Characteristic
Initial Differences
Accentuation Of Initial Differences
Individuals Relatively Low On Given Characteristic
Selection
Setting Not Nurturing Given Characteristic
Non-Accentuation Of Characteristic
Individuals Still Low On Given Characteristic

This model suggests that a setting which nurtures a particular characteristic will tend to attract individuals who already are prominent in that characteristic to some extent, and those individuals who then choose that setting will find that characteristic nurtured such that it becomes increasingly prominent. Put more concretely, this model would suggest that an educational environment which is supportive of intellectualism would tend to attract individuals who already might be characterized as relatively intellectual and that those individuals, as a result of being in that environment, would tend to become in turn even more intellectual.

At the same time, this model suggests that a setting which does not nurture a particular characteristic will not tend to attract individuals prominent in that characteristic, so that those individuals who choose this particular environment will not find support for that characteristic and therefore experience little growth along that dimension. With respect to intellectualism, this means that an environment which is not supportive of this trait will tend to attract those not initially intellectual and that as a consequence of being in this environment those individuals will likely experience little increase in intellectualism.

The model suggests as well that when viewed together, the two types of settings will attract different types of individuals, such that the one setting will have a group of individuals relatively high on the given characteristic and the other will have a group relatively low on the same characteristic, giving rise to an initial difference between the two groups on the characteristic. Then due to the accentuation of that characteristic among the group entering the nurturant environment, there will come to be over time an accentuation of the initial difference between the two groups.

The term 'accentuation', as used by Feldman and Newcomb, is thus a comparative one, but one that is used to refer to entirely different phenomena. On the one hand, it indicates the subsequent increase in initially prominent characteristics of individuals entering settings which are supportive of those characteristics. One can thus speak of the accentuation of initially prominent characteristics of individuals or even the accentuation of initially prominent characteristics of groups. On the other hand, it refers to the increase in the initial differences among those entering different environments. This has been taken to refer to an increase in average differences among groups, but by extension it might be used to refer to an increase in the initial differences among individuals as well. This then is a case of the accentuation of initial differences among groups or among individuals. It should be noted that in their discussions of the general phenomenon, Feldman and Newcomb spoke only of the accentuation of initially prominent characteristics of individuals (but not of groups) or the accentuation of initial differences among groups (but not of individuals), but it seems clear that the logic of the model makes comparisons of both individuals and groups appropriate in each instance.

It is possible to distinguish, then, four different uses of the term 'accentuation', determined by the level of analysis that is taken (group or individual) and the specific dimension of interest (initial differences or initially prominent characteristics). The focus of concern can thus

be (1) the accentuation of initial group differences, (2) the accentuation of initial individual differences, (3) the accentuation of initially prominent characteristics of groups, or (4) the accentuation of initially prominent characteristics of individuals. Studies reporting instances of accentuation have taken one or the other uses of the term in reflecting upon the research findings, but with rare exception (Moore, 1973; Feldman & Weiler, 1976) the studies have not sought to analyze the interrelationships between the various meanings of the term and the extent to which one type of accentuation is associated with and contributes to another type.

Patterns of Change in Group and Individual Differences

Although the accentuation of initial group differences has been found to be a relatively common occurrence, it does not invariably occur. It represents only one among several possible patterns of change in differences among groups.

The first of these patterns would be simply the maintenance of whatever differences are there to begin with; in such a case there would be no change in initial differences among groups over time. A second possibility would be an increase in initial differences over time; this is what has been referred to as the accentuation of initial group differences. A third possibility would be just the opposite of this - a decrease or minimization of initial group differences. In this case the groups would have become more alike rather than more diverse. A fourth possibility would be the dissolution of the initial group differences; in this case there would be no post-test differences between the groups, although there had been initial group differences. The fifth possibility would be the emergence of group differences where there had been no differences between the groups to begin with.

A variant on these patterns would be instances of a reversal in the relative group standing, where the group scoring highest on the initial measure is the group scoring lowest on the later measure and vice versa. It is noteworthy that a reversal can occur where there is maintenance of initial group differences, an increase in group differences or a decrease in group differences. A reversal on a measure, then, does not indicate the extent to which initial group differences have changed but only that the relative standing of the groups has changed. It thus alludes to a completely different dimension of change.

It should be clear that the possible patterns of change in individual differences correspond exactly to the patterns of change in group differences. Although the means of establishing the existence of these patterns at the two levels are not identical, they correspond closely and address the same issues.

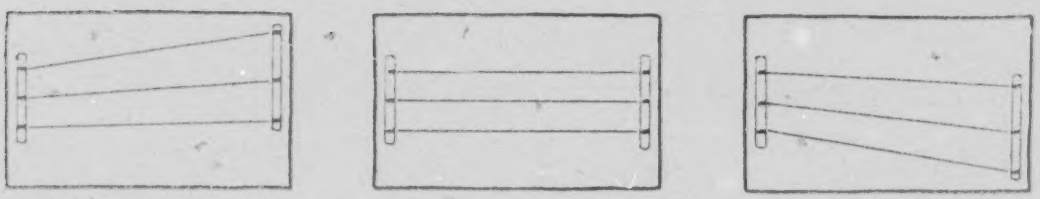
Alternative Models of Accentuation

Instances of accentuation at the group level and instances of accentuation at the individual level have been documented in recent studies. Yet there has been remarkably little done in analyzing the relationship between these two phenomena, so that the extent to which individual accentuation contributes to accentuation at the group level is still a matter for investigation.

If accentuation of initially prominent characteristics of individuals within a given setting does occur, this suggests that the process of change would be one of reinforcement, where those who are initially highest on a measure are reinforced in their orientation to the extent that they become even higher on the measure. In terms of a trait like intellectualism, this would suggest that within an environment which nurtures and supports this trait, those individuals already relatively more intellectual than the others sharing the same environment would likely experience greater growth on this dimension than their colleagues, although all within that environment would tend to gain more than individuals in a less reinforcing environment.

The following diagram indicates the patterns of individual change in different types of settings predicted by this line of thought:

Figure 2



Nurturant Setting | Neutral Setting | Hostile Setting

What the diagram also indicates is that a pattern of accentuation of initially prominent characteristics of individuals within a group will result in an accentuation of the initial differences between these individuals. As those with the highest measure of a particular characteristic become even higher in that respect, they will tend to draw even farther apart from the others on that dimension. What is indicated as well is that the accentuation of initial differences within settings is expected whenever the environment is characterized by pressures relevant to the attribute

in question. If the pressures are toward gain, there is a pattern of accentuated gain. If the pressures are toward loss, the pattern is one of accentuated loss. Only in the neutral environment would one expect no change in the initial differences among individuals within a given setting.

It should be apparent as well that accentuation of initially prominent characteristics of individuals within a nurturant setting implies not only that initial differences between individuals within that setting will increase but also that initial differences between groups will thereby increase as well. The increase in the individuals' scores within a group leads to an increase in the average score for that group and thus an increase in the group's difference from other groups. In other words, the observed increase over time in the average differences among groups (the accentuation of initial group differences) can be accounted for by a relatively greater increase in the characteristic of those individuals initially higher upon entry (the accentuation of individuals' initially prominent characteristics) who make up the initially higher scoring group.

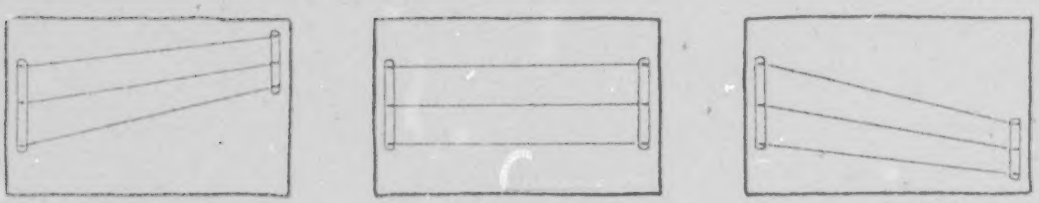
This model also suggests that the extent of increase in initial differences between groups would be directly related to the degree of initial differences. A high degree of change in average group scores would be due to a high degree of change on the part of most individuals within the group; this would tend to occur when the group is composed of individuals relatively high on the characteristic to begin with. If most individuals within the group are relatively high on the measure, the average score of the group would then be relatively high as well. Such a group would be relatively different from other groups at the outset, and those differences would be expected to increase considerably. Put in more general terms, this model of accentuation suggests that there is a direct relationship between the processes of selection into different settings and the processes of change within those settings such that the greatest amount of differential gain between groups is associated with the greatest amount of selectivity into the groups.

It is possible, however, to assume just the opposite process - that the greater gain on the part of the initially high scoring group is due to the relatively high gain of those individuals within that group who were relatively low to begin with - and still account for the phenomenon of accentuation of initial group differences. An alternative model which conceptualizes the process of accentuation in these terms would characterize educational settings as being normative with respect to a given characteristic. In the case of an individual's political outlook, for example, one educational setting might have norms best described as supporting a high degree of liberalism whereas another might be found

to encourage a more conservative orientation on that dimension. How an individual might be affected by such an environment would thus depend upon what his outlook is to begin with. The key factor in understanding patterns of change within either environment, then, would be the relationship between the norms of the environment and the individual's own position upon entry into the environment.

The following diagram indicates the patterns of individual change in different types of settings predicted by this model:

Figure 3



Norms Relatively High | Norms Relatively Diffuse | Norms Relatively Low

This suggests that there would be a convergence effect within a setting where there are clear norms regarding a particular characteristic. If the norms are relatively high, there would be a convergence upward toward these; if the norms were relatively low, the convergence would be downward. Only in a setting lacking clear norms regarding the characteristic would there tend to be little evidence of a convergence effect. The effect of such convergence would be a reduction in the degree of difference between individuals within the group.

This normative model suggests that at the group level there would be an inverse rather than a direct relationship between selection and change in the case of distinctly different educational settings. Where there is a high degree of selectivity into different settings with respect to a given characteristic, one would expect a large degree of difference in initial mean scores but little evidence of change in those differences over time, inasmuch as most individuals entering those settings would already closely approximate the norms within the settings. On the other hand, where there is a low degree of selectivity, one would expect the greatest degree of differential change, since few in the diverse settings would likely approximate the different norms.

The two models differ markedly, then, in how they characterize the relationship between selection and change at both the individual and the group level. The reinforcement model suggests that those individuals who change the most will tend to be those who are already highest on the characteristic in question; the normative model suggests that those who will change the most will be those within the higher group who are initially low on the characteristic. The reinforcement model indicates that there will be a direct relationship between differential selection and differential change at the group level; the normative model implies that this relationship will be an inverse one. The reinforcement model attributes the accentuation of initial group differences to accentuation at the individual level; the normative model suggests that accentuation of differences at the group level will be associated with minimization of differences at the individual level. An examination of the actual patterns of individual change and group change within different educational settings can serve to illuminate the nature of these interrelationships and indicate the adequacy of each of these models for explaining the phenomenon of accentuation.

Factors Affecting the Occurrence of Accentuation

It is quite possible that the processes of accentuation are operative in some situations but not others, varying according to the particular features of the settings and the distinctive qualities of the attributes in question. It is appropriate then to consider the types of educational settings in which accentuation is likely to occur and the kinds of characteristics or attributes among which accentuation might be expected.

A range of different types of settings would seem to be differentially conducive to change. Among these are different kinds of colleges, different major fields, different sub-cultures within and across colleges, different residence units or friendship groups, and different student organizations. A host of attributes seem likely to lend themselves to accentuation in educational settings as well; these would include values, attitudes, interests, goals and aspirations, and even life styles. Each of these characteristics can be seen as determining factors in the selection process and as capable of being affected by the social environment.

An additional factor is the time span over which accentuation is assessed. The pattern of changes between and within groups may well be a function of the time at which those changes are measured. For example, it may typically occur that initial differences among groups entering different settings are accentuated over the first year or two but then become dissolved by the time students graduate. It may be misleading, then, to equate different studies of changes among college students where different time spans have been used in the studies. The question of interest, of course, is whether there are systematic patterns of change over different periods of time.

It might be the case that the key to insight into these factors affecting accentuation is the interaction or relationship between them. This is to suggest that particular combinations of settings and attributes over a given time span would likely lend themselves to accentuation whereas other combinations would tend not to do so. The question then becomes one of which combinations among the factors are conducive for accentuation and which are not; the answer to such a question is a matter for empirical investigation.

METHODOLOGICAL ISSUES

The measurement of accentuation presents the researcher with several dilemmas, for the exact meaning of the term 'accentuation' varies with the means used to establish its existence. The first of the issues to be resolved is the definition of the membership of the groups to be compared.

The Definition of Group Membership

Perhaps the most common approach to analyzing changes in groups in different educational settings is to obtain a measure of each of the groups at the time of entrance to the different settings and then again at some later point in time. In this case, the group is defined as those individuals found in the given setting at a particular point in time. The important consideration in this approach is that the composition of the groups may well change over time. This is particularly true of educational settings where students transfer in and out of colleges, change major fields, or leave the college environment altogether. Changes in the average score of a group over time on a particular measure cannot be assumed to reflect changes manifested by individuals within the group, in this case, for they might be accounted for solely by changes in the composition of the group. It is quite possible, then, to find freshman-senior changes in the average score of a group where no individuals within the group have undergone any individual change.

An alternative approach is to define the sample as those individuals for whom there are both initial and later measures. The problem of differentiating between group changes due to shifts in composition and changes due to change on the part of individuals in the group is thereby overcome. This approach makes it possible to document and analyze patterns of individual change within the group, but it precludes the possibility of viewing those changes within the context of the shifting membership of the group. Even more significantly, it changes the referent of the term 'group' and may substantially alter the findings regarding changes in group differences, especially where the subgroup of those who persist in the setting over time (and thereby constitute the panel group) are not representative of the entire group that entered the setting. The advantages of using such a panel design rather than a simple longitudinal design, then, are counterbalanced by the possible disadvantages it presents.

An additional approach to the definition of group membership calls for the differentiation between those who persisted in the setting from the time of initial measures to the time of follow-up measures and those who came into the particular setting in the interim. In each case there are initial and follow-up measures on the individuals in the sample, but in the one case those who might have switched settings are differentiated from those who did not. This conceptual distinction has been stressed in recent studies of accentuation of initial differences among groups entering different major fields (Thistlethwaite, 1972, 1973; Feldman & Weiler, 1976), where 'primary recruits' (those who persisted in their declared major) are differentiated from 'secondary recruits' (those who became identified with a given major at some time after the initial measures were taken). The distinction is an important one in guarding against the assumption that changes in group characteristics are due simply to changes on the part of its primary recruits. However, defining the group by its primary recruits alone will again substantially alter the meaning of the term 'group'. It is important to be aware of the distinction, but it is equally important to stay within the common meaning of the terms.

A further consideration is the definition of the settings from which students form the groups for comparison. In some instances, such as comparisons of students in several different colleges, this need not be an issue. However, where the interest is in comparisons of students in different types of colleges, different types of sub-cultures, or different types of academic majors, a real methodological issue arises, for there often is a variety of ways in which the groupings can be formed. Significant developments have been made (Vreeland & Bidwell, 1966; Gamson, 1966, 1967, 1972) in conceptualizing some of the basic dimensions along which settings tend to vary. For the most part, however, one's choice of groupings depends upon the questions one is asking and the objectives one has in mind, so no clear preference is accorded to a particular approach. The important factor is to insure that the means of delineating the groups under consideration are consistent with the meaning one intends to attribute to the terms one uses.

The Measurement of Accentuation of Group Differences

There are several issues regarding changes in initial group differences that must be addressed to determine if accentuation has occurred. How each of these issues is dealt with is determined in part by the way in which the groups are defined at the outset. The issues are: (1) the presence and extent of initial group differences, (2) the presence and extent of later group differences, (3) the presence and extent of changes in initial group differences, and (4) the consistency of the relative position and relative gain among the groups on the measure. Documentation of accentuation of initial group differences depends upon the findings with respect to each of these issues.

There are several possibilities for indicating the extent of initial differences between groups on a particular measure. The most common indicator would be the simple numeric difference between mean scores for the groups. Yet this makes difficult any comparison of differences on different measures and becomes problematic with the introduction of numerous groups. The use of the eta square term resulting from analysis of variance procedures provides an alternative measure of the difference between groups, transforming the numeric difference into a measure of the per cent of variance in the total sample accounted for by the difference between groups. This provides a base for comparison among different measures and introduces a single overall measure of the differences among several groups. However, the use of this measure does alter the meaning of the 'difference' between groups, making it relative to the extent of differences within the total sample. Where inference to a larger population is called for, the calculation of the estimated omega square term would be appropriate, and the F ratio in the analysis of variance table would indicate the likelihood of the sample differences being due simply to chance differences arising from the sampling procedures.

The accentuation of initial group differences can occur only where there are also subsequent differences between the groups, differences which are also statistically significant. With panel data this does not become an important consideration, for one cannot have an increase in initial differences without the differences continuing to be statistically significant. However, with simple longitudinal data the loss in the size of the post-test sample typically found in studies of change may well lead to a loss of statistical significance for the post-test differences even where the extent of the differences have increased. It is important, then, to routinely test for the differences on the follow-up measures and to reflect the extent of those differences in a manner parallel to that taken in analyzing for initial differences.

The determination of whether and how much initial differences between groups have increased over time presents even more alternatives in approach, each of which imparts a somewhat different meaning to the phrase 'increase in initial differences'. The extent of change in initial differences may be indicated by a comparison of the difference in initial mean scores and the difference in post-test mean scores to see if these differences have increased. On the other hand, the initial and post-test eta squares may be compared as a measure of change in group differences, with comparable changes in the estimated omega squares taken to indicate changes in the population.

Where differences in changes are examined in samples from larger populations, the question remains as to whether those differences are due to real differences in the populations or might be accounted for by chance differences in the sampling procedures. One approach here is to focus on the actual change scores within each group, using analysis of variance procedures to determine whether the difference between mean change scores for the group might be attributed to chance alone. An alternative approach would be to calculate for the individuals within each group residual change scores, representing the difference between their actual post-test scores and their expected post-test scores predicted on the basis of their initial scores, and use these in place of the actual change scores in the analysis of variance procedures. Another approach, which avoids a direct use of change scores in any form, would be to use analysis of covariance procedures to determine whether there are differences between groups at the later point in time which cannot be explained solely on the basis of their initial differences. Each of these types of analysis, then, approaches the question of statistical significance in a somewhat different manner, and each of them is applicable only where the same individuals comprise both the pre-test and post-test samples examined.

The determination of whether changes in initial differences among groups might be due to chance differences in sampling alone becomes more problematic when panel data are not used. A two-way analysis of variance approach, taking group differences as one main effect and time differences as the other, allows the researcher to test the significance of differential change by assessing the interaction effect in the model. However, because this model treats all observations as independent of each other, the error term in the model will be considerably larger than in any of the approaches mentioned thus far, with the result that it will take relatively larger differences between sample means to rule out the possibility that those differences arose by chance alone. With respect to the question of accentuation of initial group differences, then, relatively larger increases in sample differences will be needed to attain statistical significance where panel data are not employed.

An increase in the measures of differences between groups does not by itself indicate accentuation, for it is possible to achieve this increase where the relative position of the groups has been reversed. The common intent in speaking of the increase in initial differences is that the groups have maintained their relative positions, that the group scoring highest on the given measure has continued to be the highest as the differences have increased. In documenting instances of accentuation, then, it is necessary to check whether this assumption has been met. Examination of eta squares or omega squares does not provide any indication of the maintenance of relative positions, so additional analyses are necessary to determine this.

When only two groups are being compared for accentuation of initial group differences, it is a simple matter to ascertain whether their relative standings on the measures have been maintained; it is the case that either their positions have been maintained or they have been reversed. With several groups, on the other hand, it is necessary to determine the correlation between the groups' initial mean scores and their later mean scores.

There is in addition the question of the consistency of the relative gain across groups. A case of pure accentuation of initial differences across all groups would require a perfect positive correlation between the initial mean scores and the mean change scores for all the groups as well as a perfect positive correlation between the initial mean scores and the post-test mean scores. In instances where the correlations are less than perfect, it becomes a question of how high a correlation is called for in order to speak of a trend toward accentuation.

It should be clear, then, that regardless of how the groups are defined, there are several conditions which must be met before accentuation of initial group differences can be documented. There must be evidence of initial differences between the groups under consideration, there must be evidence of later differences between the groups, there must be evidence of a significant increase in those differences over time, and there must be evidence of consistency in the relative position and relative gain on the measure. These considerations each represent necessary but not sufficient conditions for documenting the accentuation of initial group differences. The means for assessing each of these conditions may vary, however, depending upon the meaning one wishes to ascribe to the terms in the phrase "accentuation of initial group differences".

The Measurement of Accentuation of Group Characteristics

The measurement of the accentuation of initially prominent characteristics of groups presents some problems as well. The issue here centers on the meaning of the term 'prominent'. This is a comparative term, so the question becomes one of 'prominent relative to what?' If this is taken to mean prominent relative to some larger population, it is necessary to have normative data on that population to be able to assess the sample group's degree of prominence on a characteristic. If the characteristic is prominent relative to other characteristics of the particular group, the problem becomes one of assessing the comparative value of scores on different measures. If prominence of a characteristic is interpreted as the group's standing on the measure relative to other groups' standing on the measure, the issue is considerably simpler, for it is then a matter only of analyzing the relationship between the group's initial standing on a measure and its subsequent

gain on that measure. If the correlation between a group's initial score and gain score is positive, then accentuation of initially prominent characteristics can be said to have occurred; if it is negative, then minimization of initially prominent characteristics at the group level will have been found.

It should be apparent that accentuation of initially prominent characteristics of groups is, in this latter sense of the term, one of the necessary conditions for the accentuation of initial group differences. The measurement of consistency in gain across groups is the measurement for accentuation of initially prominent characteristics of groups. By definition, then, accentuation of group characteristics occurs whenever accentuation of group differences occurs.

The Measurement of Accentuation at the Individual Level

The measurement of accentuation at the individual level corresponds to a large degree to that at the group level. The necessary conditions for documenting the accentuation of initial individual differences are the same as those at the group level, but the means for determining whether those conditions have been met are somewhat different.

When accentuation of initial individual differences occurs within a group, the invariable result will be a greater dispersion of the scores. The variance score for a group represents a measure of this dispersion, so a statistically significant increase in the variance score is an indication of an increase in individual differences.

The question remains as to whether the relative positions of the individuals have been maintained and whether the increases in differences have been consistent across individuals. The correlations between individuals' initial scores and later scores and the correlations between initial scores and gain scores would need to be positive in order for accentuation to be said to occur. Such analyses are possible only with panel data; this then constitutes a limit on the meaning of changes in differences at the individual level based on analyses of simple longitudinal data.

Measurement of the accentuation of initially prominent characteristics of individuals presents the same problems of interpretation as that for the accentuation of initially prominent characteristics of groups. If prominence is taken to mean relative to other individuals, then it is a matter only of the correlation between individuals' initial scores and gain scores within the group. This is, of course, also one aspect of the determination of the accentuation of initial individual differences.

RESEARCH DESIGN AND METHODOLOGY

The present study is an exploratory one designed to analyze patterns of selection and change at both the group and individual level and test the adequacy of the two models of accentuation in several situations where they might be expected to apply. Using data that have previously been gathered for more general purposes, this study provides a comparison of a number of groups of students entering diverse types of settings within a large university with respect to their initial characteristics and subsequent change in those characteristics over time. The elements which comprise the study are those which appear to be most crucial in illuminating the distinctive processes of accentuation.

Research Questions

The research questions of concern in this study have been suggested in the preceding discussion. These include such questions as the following:

(1) What patterns of selection and change are evident at the group level?

Questions of interest here include the extent to which initial differences between groups entering different educational settings are found and the extent to which these differences become accentuated over time. An additional interest is the nature of the relation between the degree of initial differences between groups and the degree of subsequent change in those differences. The relation between the initial standing of a group and its subsequent change on a measure is also of concern.

(2) What patterns of selection and change are evident at the individual level?

The issues of concern here are the extent to which accentuation of differences between individuals within a group occurs and the extent to which accentuation of initially prominent characteristics of individuals is found.

(3) What is the relationship between the patterns of selection and change at the two levels?

The two models of accentuation suggest very different relationships between the individual and group levels, so a central issue of concern is the nature of this relationship when accentuation at the group level occurs.

(4) What processes at both the individual and group levels account for the phenomenon of accentuation?

Different processes of accentuation are proposed by the two models. A key question is the adequacy of each of the models in explaining the patterns of selection and change in college settings.

Hypotheses Regarding Accentuation

Each of the two alternative models of accentuation presented in the preceding discussions suggest a different set of hypotheses regarding the patterns of selection and change at both the group and individual levels of analysis. The hypotheses suggested by the two models are outlined below.

I. The Reinforcement Model

1. Where accentuation of initial differences between groups occurs, there will be a corresponding accentuation of individual differences within the groups.
2. Where accentuation of initial differences between groups occurs, the degree of change in those differences will be directly related to the degree of initial differences.
3. Where accentuation of initial differences between groups occurs, the amount of change by an individual within a group will be directly related to the initial standing of the individual.

II. The Normative Model

1. Where accentuation of initial differences between groups occurs, there will be a corresponding minimization of individual differences within the groups.
2. Where accentuation of initial differences between groups occurs, the degree of change in those differences will be inversely related to the degree of initial differences.
3. Where accentuation of initial differences between groups occurs, the amount of change by an individual within a group will be inversely related to the initial standing of the individual.

The extent to which these alternative sets of hypotheses are supported by the analyses of the data will indicate the adequacy of the two models for offering insight into the processes of accentuation.

General Design Of the Study

The data which this study draws upon were collected in two large-scale studies investigating patterns of student development among undergraduates at the University of Michigan. The data from these research studies have been selected for analysis in this study because the methodology of these studies provides data suitable for investigating the accentuation phenomenon. The secondary analyses performed in this study are the distinctive contribution which the study provides.

The first study (Gurin, 1971b) gathered data on student characteristics and experiences over four year periods among students entering the College of Literature, Science and the Arts (LSA) in 1962 and 1963 and was conducted as part of the Student Development Program of the university's Institute for Social Research. It provides for a comparison of students entering different major fields at the university. The second data collection was begun in 1967 by the Center for Research on Learning and Teaching at the University of Michigan for a study (Newcomb et al., 1970, 1971) of student development in a new residentially-based college of the university; it provides comparisons between those in the residential college (RC) and those in the conventional (LSA) undergraduate program.

In each case measures were obtained on large samples of these students upon entry into college and from smaller samples of the students in their senior year, with additional follow-up measures interspersed at various points within that interval. The initial measures provided data regarding their general personality characteristics, attitudes and orientations, and the subsequent measures included a readministration of a number of the instruments from which initial scores had been gathered, in order to assess what changes might have occurred over time.

The Data Sets

The data from four different data sets drawn from the two studies are subjected to analysis. This selection provides for differences in time spans, differences in settings, and differences in the types of groupings examined while maintaining some consistency among the measures used.

The first data set consists of initial measures and first and second year follow-up measures for the graduating class of 1971 collected in the study of the residential college. The comparison groups are those who entered the residential college and a sample of students who entered the conventional LSA program. The initial measures were administered to everyone in these samples, while

subsequent measures were obtained from selected portions of the initial samples. The data set is referred to in this study as the 1971 Freshman-Sophomore Data Set.

The second data set consists of initial measures and fourth year follow-up measures for this same graduating class of 1971. The comparison groups are the same, but the measures in this data set are somewhat different from those in the previous data set due to the use of different sets of follow-up measures at different points in time. This data set is referred to as the 1971 Freshman-Senior Data Set.

The third data set consists of initial measures and first year follow-up measures for the graduating class of 1974 collected in the study of the residential college. The comparison groups are the same, but in this case the initial measures were taken in 1971, the same year in which senior year measures in the previous data set were collected. This data set is referred to as the 1974 Freshman-Sophomore Data Set.

The fourth data set consists of initial measures and fourth-year follow-up measures for the two graduating classes of 1966 and 1967 from the study of student development in the College of Literature, Science and the Arts. The initial measures were gathered from virtually everyone in these two entering classes, while the follow-up measures were taken from selected samples of these classes. The comparison groups are composed of students within eight broad classifications of major fields of study. This data set is referred to as the 1966-67 Freshman-Senior Data Set.

Variables Used in the Analyses

The patterns of selection and change on the part of students entering the different educational settings are traced by their scores on a variety of measures administered to them at different points in time. Initial and follow-up scores for students in each entering class were obtained on some combination of these different measures. Outlined below are the various scales and items which represent the variables of interest in this study; for each measure the range of possible scores and a brief description of its content is indicated.

The College Student Questionnaire (CSQ), developed by the Educational Testing Service (Peterson, 1968) as a means of gathering biographical and attitudinal information about college students, was the instrument providing a number of the measures. The following attitudinal scales were drawn from this questionnaire:

Family Independence (10-40): A generalized autonomy in relation to parents and parental family.

Peer Independence (10-40): A generalized autonomy in relation to one's peers.

Liberalism (10-40): A political-economic-social value dimension, the nucleus of which is sympathy either for an ideology of change or for an ideology of preservation.

Social Conscience (10-40): A moral concern about perceived social injustice and what might be called institutional wrongdoing.

Cultural Sophistication (10-40): An authentic sensibility to ideas and art forms, a sensibility that has developed through knowledge and experience.

The College Student Questionnaire also provided a measure of students' basic orientations toward the college experience. The items were based upon a typology of student subcultures (Clark & Trow, 1966) and asked the students to rank each of four different orientations as descriptive of their own purposes and goals while in college. The orientations are characterized as follows:

Vocational (1-4): This philosophy emphasizes education as essentially preparation for an occupational future.

Academic (1-4): This philosophy assigns greatest importance to scholarly pursuit of knowledge and understanding.

Collegiate (1-4): This philosophy emphasizes the importance of the extracurricular side of college life.

Non-Conformist (1-4): This philosophy emphasizes individualistic interests and styles, concern for personal identity, and often contempt for many aspects of organized society.

The Omnibus Personality Inventory (OPI), an instrument developed by the Center for Research and Development in Higher Education (Heist & Yonge, 1968) provided a number of additional measures. The scales derived from this instrument are outlined below; a reduced number of the scales and items were used in the 1966-67 data set.

Thinking Introversion (0-43): This measure indicates a liking for reflective thought and academic activities.

Theoretical Orientation (0-33): This measure reflects a preference for dealing with theoretical concerns and problems and for using the scientific method in thinking.

Estheticism (0-24): This measure indicates diverse interests in artistic matters and a high level of sensitivity and response to esthetic stimulation.

Complexity (0-32): This measure reflects an experimental and flexible orientation rather than a fixed way of viewing and organizing phenomena.

Autonomy (0-43): This is a measure of liberal, non-authoritarian thinking and a need for independence.

Religious Orientation (0-26): This is a measure of adherence to conventional religious beliefs and practices.

Social Extraversion (0-40): This measure reflects a preferred style of relating to people in a social context.

Impulse Expression (0-59): This measure assesses a general readiness to express impulses and to seek gratification either in conscious thought or in overt action.

Personal Integration (0-55): This is a measure of attitudes and behaviors that characterize socially alienated or emotionally disturbed persons.

Anxiety Level (0-20): This measure reflects feelings or symptoms of anxiety and difficulty in adjusting to the social environment.

Altruism (0-36): This measure indicates the extent of concern for the feelings and welfare of other people.

Practical Outlook (0-30): This measures interest in practical, applied activities and concrete accomplishments.

Masculinity-Femininity (0-56): This measure assesses some of the typical differences in attitudes and interests between men and women.

Response Bias (0-28): This measure represents an approach to assessing the student's test-taking attitude in terms of seeking to make a good impression.

The responses to the OPI instrument by the students in the study of the residential college were analyzed through cluster analysis techniques by the research staff of the university's Center for Research on Learning and Teaching, with the result that 4 basic dimensions which the OPI items seemed to measure were identified. Cluster scores on each of these dimensions provided additional variables in those data sets.

Anxiety (0-25): This measure reflects feelings and symptoms of anxiety or alienation.

Intellectualism (0-25): This measures interest in a broad range of ideas found in a variety of areas.

Authoritarianism (0-25): This measures conventionality of outlook and tolerance of those who differ from one's own views.

Sociability (0-30): This measures one's tendency to interact a great deal with others and play an active role in social activities and organizations.

The Allport-Vernon-Lindzey Study of Values (Allport et al., 1960) is an instrument for measuring the relative importance of 6 types of general values. In one of the studies the students were asked to rank order these values in terms of their relative importance for themselves. The values are characterized as follows:

Theoretical (1-6): An interest in empirical, critical or rational matters, observing and reasoning, ordering and systematizing, discovering truths.

Economic (1-6): An interest in that which is useful and practical, a preference for judging things by their tangible utility.

Aesthetic (1-6): An interest in beauty, form and harmony for its own sake, an artistic interpretation of life.

Social (1-6): An interest in human beings for their own sake, in human relationships and love.

Political (1-6): An interest in power and influence, in leadership and competition.

Religious (1-6): An interest in religious experience as providing satisfaction and meaning.

The two studies of student development also included a group of items which asked students to rate the importance they felt certain areas of life would have for them after college. These areas are identified as follows:

Career (1-4): The sphere of the individual's occupation or career.

Religion (1-4): The area of religious beliefs and activities.

Marriage (1-4): The realm of marriage, one's relationship with husband or wife.

Family (1-4): One's relationship with other family members, such as parents and relatives.

Ideas (1-4): The world of ideas, the intellectual life.

Friendships (1-4): The area of friendships.

Citizen (1-4): Participation as a citizen in the affairs of one's community.

Arts (1-4): The world of arts and music, the aesthetic life.

National (1-4): Involvement in activities directed toward national or international betterment.

This listing of items and scales represents the full range of dependent variables used in the analyses for this study. Within any single data set only a sub-set of these variables is to be found; there is, however, considerable overlap among variables from data set to data set.

The settings which form the basis for the comparison groups vary somewhat as well. In the case of the 1971 data sets, the settings are (1) the university's newly established residential college and (2) its traditional undergraduate liberal arts college. The 1971 graduating class was the first class to enroll in the residential college, and measures were taken following its first and second year and again at the end of its fourth year.

For the 1974 data set, the settings are again (1) the residential college and (2) the traditional liberal arts college. In this case, however, the residential college had been in operation for several years and a rather clear-cut image of its climate and tone had emerged. One would expect, then, that entrants into the college at this later time might represent a narrower range of characteristics than those entering at the outset.

The basis for the grouping of students in the 1966-67 data set is their declaration of major field of study. Eight broad classifications of major fields have been used to categorize the students. These classifications are (1) preprofessional studies for major professions (pre-med, pre-law, engineering, etc.), (2) preprofessional studies for minor professions (pharmacy, public health, speech therapy, etc.), (3) humanities, (4) social sciences, (5) basic sciences, (6) education, (7) the arts, and (8) business administration and natural resources. Those who declared no major were left out of the analyses.

Pattern of Analyses

A similar pattern of analyses is performed on each of the data sets, with parallel analyses using both panel and simple longitudinal data to indicate the difference in results provided by each of the two approaches.

Analyses of the patterns of change in initial differences between groups begin with the determination of the extent of initial differences between the different groups. The estimated omega square term resulting from analysis of variance procedures is taken as the best indicator of the extent of the differences on a given measure, and the F-ratio from the analysis of variance tables is examined to indicate the likelihood that the sample differences might have arisen simply from chance differences in the sampling procedures. The same types of analyses are used to determine the extent of group differences on the follow-up measures as well.

The extent of change in the differences between groups is indicated by the simple difference between the pre-test and post-test omega square estimates on the given measure. Whether this change is statistically significant is reflected, in the panel data analyses, in the F-ratio resulting from analysis of covariance procedures, where the post-test mean scores are taken as the dependent variable and the pre-test mean scores are taken as the covariate. In the longitudinal analyses, the F-ratio represents the interaction effects resulting from a two-way analysis of variance in which group membership constitutes one effect and the pre-test / post-test time span represents the other effect.

A set of correlational analyses provides additional information regarding the patterns of group change. The correlation between the initial mean score and the post-test mean score for different groups on a given measure indicates the extent to which the groups have maintained their relative positions on the measure. The correlation between the initial mean score and the change score for the groups indicates the consistency with which the groups have pulled apart and thus the extent of accentuation of group characteristics. The correlations between the degree of initial group differences on the various measures and the degree of subsequent change in those differences indicates the strength and direction of the relationship between selection and change at the group level.

The patterns of selection and change at the individual level are examined through analyses of changes in the relative dispersion and relative standing of individual scores within a group. A change in the pre-test and post-test variance score for a group is taken as the best indicator of shifts in the dispersion of the scores; the significance level of the F-ratio for the variance scores indicates whether the sample changes are statistically significant. With the panel data it is possible as well to examine the correlation between individuals' initial scores and their post-test scores and the correlation between their initial scores and their change scores. The first set of correlations indicates the consistency with which individuals maintain their relative position on a measure within their group; the second set indicates the consistency with which they draw apart from each other.

The patterns of relationships among variables indicated by these sets of analyses provide evidence of the extent of accentuation at both the group and individual level and the adequacy of the alternative models of accentuation for explaining its occurrence.

ANALYSES OF DATA SETS

The analyses presented below examine the patterns of selection and change at both the group and individual levels in each of the data sets. The nature and extent of accentuation of initial differences and accentuation of initially prominent characteristics at each level are examined and their interrelationships are explored.

1971 Freshman-Sophomore Data Set

The analysis of patterns of selection and change at the group level begins with an examination of the initial differences between the two groups on the several measures as shown in Tables 1 & 2. They indicate that the groups of students entering the two collegiate settings are on the average somewhat different on most of the scales and clusters. These differences are most evident for the scales reflecting a nonconformist orientation to college, practicality of outlook, and authoriterianism. The differences between the groups are not really striking, however, for in no instance is as much as 5 per cent of the total variance on a measure accounted for by group membership. The initial differences on 17 of the 27 measures in the simple longitudinal data (Table 1) and 16 of the 27 measures in the panel data (Table 2) are nevertheless sufficiently large to render unlikely the possibility that the observed differences in initial scores are due simply to chance variations in the samples rather than to actual differences in true measures of these variables.

A comparison of the differences on the post-measures with the differences on the initial measures reveals in most instances an increase in the differences between the samples. In the panel analyses (Table 2) there are 18 instances of an increase in the differences, with 5 of these representing an emergence of statistically significant differences where there were no clear differences to begin with. Nevertheless, in only 6 of the 16 cases of initial group differences in the panel data (Table 4) are the increases in the differences statistically significant. Accentuation of initial group differences occurs in these panel data only for the scales providing measures of liberalism, theoretical orientation, complexity, autonomy, religious orientation and authoritarianism.

In the longitudinal analyses (Table 3) the increase in the differences between the samples on each of these variables is in most instances slightly greater; yet due to the lack of sensitivity in the two-way analysis of variance model for these data, only the increases for complexity and authoritarianism are found to be statistically significant. In each of the analyses, it should be noted, most of the

changes in the differences between the groups, whether increases or decreases, are not sufficiently great to render them statistically significant. The most that can be said, then, is that there are a few instances of accentuation of group differences, a few instances of the emergence of differences, but by and large the predominant pattern seems to be that of the maintenance of whatever differences there are to begin with.

The question remains as to whether there is a consistent relationship between the extent of initial differences between the two groups on a given measure and the extent of subsequent change in those differences. An examination of Tables 1 & 2 reveals that the largest initial differences were found on the measures for non-conformist orientation to college, practicality of outlook, authoritarianism and complexity. The greatest amount of gain, as seen in Tables 3 & 4, was recorded for the measures on complexity, liberalism and religious orientation, in that order, while the greatest amount of loss came on the measure for non-conformist orientation. Overall, the correlation between initial differences and subsequent change in differences is -.02 for the panel analyses and -.17 for the longitudinal analyses. Neither of these correlations is sufficiently large to suggest that there is any relationship between the degree of selectivity and the degree of differential change at the group level in these data.

Accentuation of initially prominent characteristics of groups is reflected in the relationship between the initial standing of a group on a given measure and its subsequent gain on that measure relative to the other group. The overall pattern among the sample measures is one of a positive relationship; for 21 of the 27 measures in the longitudinal data (Table 5) and 20 of the 27 measures in the panel data (Table 6) this relationship is positive. On the other hand, on only 14 measures is change sufficiently large to be statistically significant, and in 3 of these instances there is a negative rather than positive relationship between initial standing and gain. The tendency is for a positive relationship between the two, then, but there are clear exceptions.

On the measures where accentuation of initial group differences had occurred, the relationship between initial standing of a group and subsequent gain relative to the other group is invariably positive. Accentuation of initial group differences, then, is in each instance associated with the accentuation of initially prominent characteristics of the groups.

The analysis of patterns of selection and change at the individual level begins with a comparison of pre-test and post-test variance scores for each of the samples as a measure of the extent to which accentuation of individual differences within groups occurs. An increase in individual

differences would lead to a wider spread of scores within a given group, so an increase in the variance score of a group should be associated with any accentuation at the individual level. The results presented in Tables 7 & 8 indicate little overall consistency in changes in variance scores for the samples across the various scales and, for the six measures in the panel data where there was clear accentuation of initial group differences, an almost even mix of increases and decreases in the variance in the samples. For the most part chance differences in the samples cannot be ruled out as the cause of the observed differences in variance scores, and in the few instances where it can, no clear pattern of change in variance scores emerges.

The pattern of selection and change in individual scores can be explored further by examining Table 9, which presents for each group the correlations of initial scores and post-test scores together with the correlations of initial scores and gain scores. The consistent pattern of positive correlations between initial scores and post-test scores within each group and the consistent negative correlations between initial scores and gain scores indicates that although individuals within a group tended to maintain their relative positions on a given measure, the initially highest scoring individuals are not associated with the highest gain in scores but rather the reverse. This is true for individuals in the initially lower scoring group as well as for those in the initially higher group on any measure. This indicates that the accentuation of initially prominent characteristics of individuals is not reflected in the data sets and is not evident in any of the instances where initial group differences have been accentuated. Since this represents one of the necessary conditions for accentuation of initial individual differences, there is consistent evidence against this type of accentuation in this data set.

1971 Freshman-Senior Data Set

The results of analyses of initial group differences in the 1971 Freshman-Senior Data Set reveal a somewhat different pattern from that of the 1971 Freshman-Sophomore Data Set. In the longitudinal data (Table 10), of course, where there are parallel measures the differences are exactly the same, showing a rather consistent pattern of slight but significant initial differences across most of the measures. In the case of the additional measures, however, ones which reflect the students' emphases on future aspects of their lives, there are fewer differences. Only 2 of the 6 additional measures show significant differences, and for 3 of the other measures group membership fails to account for any of the variance.

The pattern of differences in initial measures in the panel data (Table 11) is notably different from that of the longitudinal data. Where there are differences between the two samples, these differences are consistently greater than the comparable ones found in the longitudinal data; yet the number of measures for which there are significant differences is far fewer. On only 5 of the 19 measures are there statistically significant differences; on the other hand, for 8 of the other 11 measures group membership accounts for none of the variance on those measures.

The results in Tables 10 & 11 present a striking change in the pattern of follow-up measures. There are only 3 measures for which there are sufficiently large post-test differences to be able to rule out chance differences in sampling as the cause of those differences. In the longitudinal data (Table 10) there are no significant differences on 9 of the 12 measures for which there were clear initial differences. In the case of the panel data (Table 11), for 2 of the 3 measures with post-test differences, those differences represent an emergence of group differences, so on only 1 of the measures have initial differences even been maintained.

The tests of significance of changes in group differences shown in Tables 12 & 13 confirm that the predominant pattern of change in initial group differences over the four year period is one of dissolution of those differences rather than an increase in those differences. No instances of accentuation of initial group differences are found in the 1971 Freshman-Senior Data Set.

The relationship between initial group differences and differential gain is once again somewhat inconsistent. In the panel data, the highest initial differences are found on the measures of peer independence, social conscience, cultural sophistication, emphasis on national betterment, and an academic orientation toward college. The highest gains in group differences, however, came on the measures of collegiate and non-conformist orientations toward college. The highest losses, on the other hand, are found on the measures of peer independence, social conscience, cultural sophistication, emphasis on national betterment, and an academic orientation toward college, just those measures for which there were the greatest initial differences. The correlation in the panel data between initial group differences and change in those differences across all measures is -.66, indicating an inverse relationship between initial differences and differential change at the group level.

The results of the longitudinal analyses are much less consistent. There the measures reflecting the greatest initial differences are those for a collegiate and non-conformist orientation toward college and for intellectualism. The highest degree of loss of group differences comes on the measure for intellectualism, but the highest gains are found on the measures for collegiate and non-conformist orientations. Not surprisingly, the overall correlation between initial differences and change in those differences is .12, indicating little if any consistency in the relationship between initial group differences and differential gain in these data.

The relationship between a group's initial standing on a measure and subsequent gain on the measure in these data, as shown in Tables 14 & 15, is predominantly a negative one. The highest group showed the greatest gain on only 8 of the 19 measures in the longitudinal data and only 6 of the 19 measures in the panel data. Where there was a statistically significant change on a measure in the panel data, accentuation of the highest score occurred for only 3 of these 10 measures.

The predominant pattern of change in initial group differences, as indicated already, was one of dissolution of those differences. In the panel data, instances of dissolution were accompanied in every case by a negative relationship between a group's initial standing and its subsequent gain. In the longitudinal data, however, dissolution of statistically significant differences occurred in some instances where the relationship was positive; the loss of significance was due simply to the reduction in the size of the post-test sample.

The patterns of selection and change at the individual level in these data are similar to those in the previous data set. The changes in pre-test and post-test variance scores on the various measures, as seen in Tables 16 & 17, show no consistent pattern of change. For the most part, the changes in variance that do occur within the groups are not sufficiently large to reach statistical significance, and in those instances where there is sufficient change, there is no consistent pattern to the change.

The pattern of change among individuals within the groups, on the other hand, is rather consistent. The results in Table 18 indicate that in every instance there is a positive correlation between individuals' pre-test and post-test standings on a given measure but a negative correlation between their pre-test and change scores. It is interesting to note that the pre-gain correlations tend to be somewhat higher than those for the freshman-sophomore data set and the pre-post correlations tend to be somewhat lower, suggesting an even greater increase on the part of those individuals within a given group who scored initially relatively low. There is, then, in this data set as well consistent evidence against accentuation at the individual level but no consistent evidence for a minimization of individual differences.

1974 Freshman-Sophomore Data Set

The pattern of initial group differences in the 1974 Freshman-Sophomore Data Set, as shown in Tables 19 & 20, provides an interesting comparison to the group differences seen in the 1971 data sets. On the whole, where there are initial differences between the groups entering the two settings at the later point in time, these differences are consistently greater than the differences found with the earlier entering class. Perhaps most interesting, the initial differences in the later groups approximate most the first and second year differences on follow-up measures for the earlier entering class rather than their initial differences.

For the 13 measures available for the 1974 class, there are statistically significant group differences on 6 of these initial measures in the panel data (Table 20) and on 10 of the 13 measures in the longitudinal data (Table 19). The initial group differences on several of the measures represent as much as 10 per cent of the total variance in the sample, considerably more than any of the initial group differences found in the 1971 data sets.

The pattern of change in group differences, as seen in Tables 21 & 22 is once again rather inconsistent. In the longitudinal data (Table 21) there are several instances of the dissolution of initial group differences, two instances of the emergence of group differences, but in most instances simply the maintenance of whatever differences there are from the outset. In the panel data (Table 22) there are 3 instances where sample differences are increased sufficiently to speak of the accentuation of initial differences and an additional 3 instances of the emergence of group differences. On most of the measures, however, it is again the case of maintenance of whatever initial differences are present (Tables 23 & 24).

The relationship between selection and change at the group level is striking for the longitudinal data but almost completely lacking for the panel data. In the longitudinal samples, the greatest initial group differences are found on the measures of liberalism, cultural sophistication, vocational and non-conformist orientations to college, intellectualism and authoritarianism. The corresponding change in group differences on each of these measures is one of loss, with the greatest losses tending to come where the initial differences were the largest. The correlation between initial group differences and change in those differences across all measures in the data set is -.70.

In the panel data the initial group differences are not as great, and there is no consistent relationship between the size of the initial differences and the degree of change in those differences. The correlation between the two is .02 across the entire panel data.

The accentuation of initially prominent characteristics of groups is not very evident in these data. Statistically significant change in a group's initial score on a measure is found on only 4 measures in the longitudinal data (Table 23) and only 1 measure in the panel data (Table 24). The relationship between initial standing and subsequent gain is negative in 3 of the 4 cases for the longitudinal data. Where accentuation of group differences occurs, as is the case with the measures of cultural sophistication and vocational and academic orientations to college in the panel data, the relationship is of course a positive one. Yet it is noteworthy that none of the changes in group scores that produce such accentuation of group differences is of itself statistically significant.

The pattern of change in variance scores for the groups on each of the measures is seen in Tables 25 & 26. The noteworthy aspect of these is that although there is a mix of increases and decreases in the variance within the sample groups on the various measures, there are only one or two instances where the extent of change in variance is sufficiently large to be statistically significant, and these instances were not measures where accentuation of group differences had occurred. The consistent impression conveyed by the entire table is one of no real change in the variance within the groups.

The correlation of scores at the individual level, as seen in Table 27, follows the general pattern of the other data sets. Within both groups on each of the measures there is a fairly high positive correlation between an individual's initial score and that individual's post-test score. The correlations between initial scores and change scores, on the other hand, are with rare exception moderately negative, although in several instances these negative correlations are not sufficiently strong to reach statistical significance. The general picture, then, is one of neither an accentuation nor a minimization of differences at the individual level.

1966-67 Freshman-Senior Data Set

The results of analyses of initial group differences in the 1966-67 Freshman-Senior Data Set present a very consistent picture of differences among the groups identified with different major fields. In both the longitudinal data (Table 28) and the panel data (Table 29) there are initial differences on each measure sufficiently great to reach statistical significance. This prevalence of significant differences might be attributed solely to the considerable size of the samples in the data set; however, the magnitude of the differences on most measures exceeds that of the differences found in the other data sets.

The analyses of group differences on the follow-up measures also present a very consistent picture of differences among the groups. On every measure there continue to be statistically significant differences between the groups, and on 19 of the 22 measures there is an increase in the size of those differences in the samples. The analyses indicate that the changes in group differences are statistically significant on every single measure in the panel data (Table 31), so that the predominant pattern of change is clearly one of an overall increase in initial group differences. In the longitudinal data (Table 30) the change in differences on the measures exceeds in most instances the extent of change in the panel data, yet due to the lack of power of the two-way analysis of variance model for this type of data, in only 6 instances are the changes found to be statistically significant.

With these data it is necessary to look at not only the extent to which the differences between the several groups have increased but also the consistency with which the groups have maintained their relative standing on a measure and the consistency with which they have diverged on each measure. The column of pre-test / post-test correlations of mean scores for the groups on each measure shown in Tables 30 & 31 presents a consistent pattern of rather high positive correlations; this indicates that on each measure the different groups tended to maintain their relative standing over the four year period. The groups initially highest on a measure tended to remain the highest, and the groups initially lowest tended to remain the lowest.

There was little consistency, however, in the correlations between the groups' initial standing and the extent to which they increased on a given measure. The pre-test / gain correlations seen in Tables 30 & 31 present a very mixed picture of both positive and negative correlations. This indicates that across all measures there was no consistent relationship between a group's initial standing on a measure and the extent to which that group increased its score on that measure. As Tables 32 & 33 indicate, in some instances the groups initially highest tended to increase the most; in other instances the groups initially lowest tended to increase the most. In most instances there simply was no significant relationship between a group's initial standing and the extent to which it increased or decreased its score on a measure. As a result, although there was an increase in overall differences between the groups on most measures, for only 10 of the 22 measures in the panel data can it be said that accentuation of group differences has occurred.

The extent to which accentuation of initially prominent characteristics of groups occurred is reflected in these pre-test / gain score correlations on each measure. The analyses have shown that such accentuation occurred on some measures but not on others. What is clear is that in this data set there was no consistent relationship between an increase in the extent of overall group differences and the accentuation of initially prominent characteristics of the groups.

The relationship between selection and change at the group level in this data set is inconsistent as well. The measures where there are the greatest initial differences in the longitudinal data are those for theoretical orientation, estheticism, aesthetic values, and an emphasis upon occupational concerns. The greatest gain in group differences came on the measure of aesthetic values, but the greatest loss came on the measure of occupational concern. The correlation between initial differences and change in those differences across all measures was -.04, indicating virtually no relationship between the two dimensions. The pattern of selection and change in the panel data was not substantially different; the correlation across all measures there was -.17, again indicative of almost no relationship between the two.

The change in variance scores for the groups in this data set, as shown in Tables 34 & 35, also present no clear pattern. Although the differences among the groups consistently increase across almost all of the measures, this is accompanied neither by a consistent increase in the variance within the groups nor by a consistent decrease in the variances. In most instances the observed changes in variance within the group are not sufficiently large to be statistically significant; in the cases where they are, there is no consistent pattern of increase or decrease.

The correlations at the individual level, as seen in Table 36, present the same general pattern found in the other data sets. The pre-test / post-test correlations of individuals within each group are consistently positive, although in a number of instances the correlations are not sufficiently strong to reach statistical significance. On the whole these correlations are positive but somewhat weaker than the pre-test / post-test correlations found in the other data sets.

The correlations within each group between individuals' initial scores and the change in their scores is consistently negative across all measures. This is true whether there is an increase in group differences on a given measure or a decrease. These correlations are in every case statistically significant and for a number of the measures consistently higher than those found in the other data sets. The evidence once again is consistently against any accentuation at the individual level. On the other hand, there is no evidence of a consistent decrease in individual differences within the groups where accentuation of group differences does occur.

SUMMARY AND DISCUSSION OF RESULTS

The results of the analyses of the various data sets are summarized below. They are discussed in terms of the light they shed on the patterns of selection and change at both the group and individual level, the implications of different methodological approaches, the applicability of the alternative models of accentuation, and possible limitations in both the models and the data sets.

Patterns of Selection and Change at the Group Level

The analyses of the various data sets indicated fairly widespread differences in the groups entering the different educational settings. Although the degree of differences between the groups on any particular measure was seldom large, there were statistically significant differences on most measures in each of the data sets. The initial differences were notably stronger between the groups in the 1974 Freshman-Sophomore Data Set compared to groups entering the same settings 3 years before. This would seem to reflect an increasing degree of selectivity in the groups entering the diverse settings. The strongest and most consistent initial differences were found between the groups declaring different major fields as seen in the 1966-67 data set; the initial differences on all of the measures in this data set were statistically significant. The greater strength and consistency of those differences suggest a somewhat higher degree of selectivity in students entering major fields of study compared to those entering different types of residential learning arrangements.

The maintenance of initial group differences was the predominant pattern of change in the freshman-sophomore data sets for the classes of 1971 and 1974, as there were only a few instances of accentuation in those data sets. The freshman-senior data set for the class of 1971 presented a predominant pattern of dissolution of initial differences, and there were no instances of accentuation there. In contrast to these, a consistent increase in the overall difference between groups was found in the 1966-67 freshman-senior data set. However, there was no corresponding consistency in the increase of differences between each of the groups on a given measure, so that accentuation of initial differences, in the usual sense of the term, was not the clear pattern.

Throughout all the data sets analyzed in the study, then, the predominant pattern was not one of accentuation of initial group differences but rather maintenance of those differences and in some circumstances the dissolution of those differences. Accentuation of differences between groups entering the different residential learning settings did occur on some measures over the course of a year or two but did not persist over the course of four years. Accentuation was found more frequently

between groups entering different major fields, but the lack of consistency in changes in between-group differences on a given measure prevented accentuation from becoming the predominant pattern of change.

In most of the data sets there was no clear relationship across all measures between the degree of initial differences between groups and the degree of subsequent change in those differences. A high degree of selectivity was not associated with a high degree of change in the difference between groups. In two of the data sets a clear negative relationship was found, but there was no apparent explanation for this. The nature of the relationship was clearly not consistent across the data sets.

A comparison of different groups entering the same settings is possible only with the 1971 and 1974 data sets. Initial scores and first and second-year followup scores are available on 13 measures which are comparable for each of the two entering classes. When the relationship between initial difference and subsequent change in that difference is examined separately for each measure, a rather consistent pattern does emerge. In the 1971 data set, for most measures the initial differences are not great, but there tends to be an increase in those differences over time. In the 1974 data set, the initial differences on the same measures tend to be greater, but there is less of a gain in those differences. Overall, on 11 of the 13 measures there is an inverse relationship between the degree of initial difference and the extent of subsequent increase in that difference.

The prevalence of accentuation of initially prominent characteristics of groups varied with the particular data sets. In the 1971 Freshman-Sophomore Data Set there was generally a positive relation between a group's initial standing on a measure and its subsequent gain relative to the other groups, even in instances where accentuation of group differences did not occur. In the 1974 Data Set, however, the relation was negative in the few instances where there was statistically significant change in a group's mean score on a measure. In the 1971 Freshman-Senior Data Set the relation was generally negative; it was, of course, negative in every case of the dissolution of initial differences. In the 1966-67 Freshman-Senior Data Set there was simply no consistency across the measures in the relationship between initial group standing and subsequent change; on most measures the relationship was not sufficiently strong to be statistically significant. Accentuation of initially prominent characteristics of groups was found in the data sets, invariably wherever accentuation of initial group differences occurred, but there was no clear pattern of explanation for when it did or did not occur.

Patterns of Selection and Change at the Individual Level

The patterns of selection and change at the individual level were basically the same across all data sets. Although there was some change in the variance scores of the samples on the several measures, this change in dispersion of individual scores was not consistent in direction or extent and seldom was sufficiently great to achieve statistical significance. A change in the dispersion of scores was not consistently associated with instances where accentuation of initial group differences occurred.

Throughout the data sets, however, there were very clear relationships between an individual's initial standing within a group, the individual's subsequent standing in the group, and the amount of change on a measure that the individual experienced. The correlation between pre-test scores and post-test scores was consistently high and positive, indicating that for the most part individuals tended to maintain their relative standing on that measure. The correlations between initial standing and subsequent gain were consistently negative, however, indicating that those who scored the highest on a measure tended to gain the least and those who scored the lowest on the measure tended to gain the most.

This pattern of change in individuals' pre-test and post-test scores on the various measures is quite clear. However, it is difficult to assess the patterns of actual change on the part of the individuals due to the limitations of the measures. A positive correlation between pre-test and post-test scores and a negative correlation between pre-test and gain scores would be expected even if there were no actual change on the part of individuals; such patterns of change in scores arise simply from the operation of regression effects and ceiling effects alone. The extent to which actual change by individuals is reflected in the patterns of change in scores remains unclear. What is clear, however, is that accentuation at the group level is not based upon the accentuation of differences in scores at the individual level.

The pattern that emerges at the individual level, then, is one of some shifting around of relative standing within the group but a tendency to maintain the extent of overall differences within a group. There is very little change in the dispersion of scores within a group and no consistent evidence for accentuation or minimization of individual differences within the groups.

Implications of Methodological Approaches

The introduction of parallel analyses using both longitudinal and panel data has brought out some striking differences in the results of the two approaches. Generally speaking, the initial differences between groups are more pronounced in the longitudinal analyses than in

the panel analyses. This is not so consistently the case in the 1966-67 data set, but it is clearly the case in the others. It is most evident in the 1971 Freshman-Senior Data Set, where statistically significant initial differences between groups are found on 12 of the 19 measures in the longitudinal data but on only 5 of those measures in the panel data.

It is consistently the case, on the other hand, that accentuation of initial group differences can be documented more frequently in the panel data than in the corresponding longitudinal data. The change in differences in the samples is usually somewhat greater in the longitudinal data; however, due to the greater amount of change necessary to reach statistical significance when the analysis of covariance model cannot be employed, the number of statistically significant instances of an increase in group differences is consistently less in the longitudinal data.

What is clear from the 1971 and 1974 data sets is that the initial groups in the panel analyses are not altogether representative of the initial groups in the corresponding longitudinal analyses. What is not clear, however, is the source of the differences. Selective attrition within the settings is quite likely to cause some change in the composition of the groups; systematic differences in the sampling procedures and the considerably smaller size of the post-test samples can add to that. The extent to which each of these factors contributes to the differences in the samples remains unclear. In any case, the consistent pattern is one of fewer instances of initial group differences in the panel data and fewer instances of accentuation of group differences in the longitudinal data.

The particular choice of measures seems to make a difference in the study of accentuation. Initial differences between groups and change in those differences were found rather consistently on some measures and not on others. Among the CSQ measures, those for political liberalism, cultural sophistication, and students' orientations toward college figured prominently in the patterns of selection and change, whereas the measures for family and peer independence and social conscience did not. Among the OPI scales and clusters, several of the measures consistently differentiated between groups and often showed significant changes in those differences, although most of the measures did not distinguish between the different groups. The measures of intellectual orientation, esthetic outlook, and degree of authoritarianism provided evidence of the most distinctive differences between groups. Among the additional measures in the data sets, emphasis upon one's career was the feature that most differentiated the students in the different major fields.

The choice of settings by which the groups are defined seems to make some difference as well. The initial differences among groups were more pervasive and more striking in the case of students entering different major fields compared to those entering the different residential settings. An increase in initial differences was also much more consistent in the case of the major field groupings.

The choices regarding the time dimension showed striking differences in the patterns that emerged. Differences between the groups of students in the 1971 data set which had emerged or were accentuated over the span of a year or two were found to have dissolved by the end of four years. The pattern of differences between groups in the 1974 data set compared to that in the 1971 data set was also quite striking. The pattern of sizable initial differences between the groups approximated the pattern of first and second-year followup measures in the earlier data set.

The analyses of the various data sets reveal some degree of interaction between measures, settings and time span. Some measures were more prominent in distinguishing between groups in some settings and not others; differences in esthetic orientation were particularly prominent in differentiating major fields but less so in distinguishing between residential settings. The impact of the time span was clearly affected by the nature of the settings as well. An increase in initial differences over four years was fairly widespread for the groups defined by major field, whereas a dissolution of group differences over four years was consistently the case for the groups defined by residential setting.

All of this suggests that methodological considerations play a significant role in the assessment of the extent to which initial differences between groups occur and the extent to which accentuation of such differences is found. The researcher clearly must be aware of the implications of the choices he makes with respect to these methodological issues.

Applicability of the Models of Accentuation

The two models of accentuation presented in the section dealing with the theoretical and conceptual background of this study offered alternative explanations of the processes by which accentuation occurs. What was striking in the comparison of the models was the difference in the manner in which patterns of selection and change at the individual level were seen to contribute to patterns of selection and change at the group level. The reinforcement model suggested that accentuation of initial group differences arises from accentuation at the individual level, whereas the normative model suggested that accentuation of group differences would be accompanied by a minimization of individual differences within groups. The one model predicted a direct relationship between the extent of initial differences between groups and the subsequent change in those differences; the other model predicted that this would be an inverse relationship.

What is clear from the results of the analyses regarding the patterns of selection and change at both the group and individual level is that neither model is applicable to the processes at work in these data sets. The sets of hypotheses predicted by each of the models were not supported by the results in this study.

There are clear instances of accentuation of initial group differences in the data sets, even if that is not the predominant pattern of change. However, where accentuation does occur, it is not associated with any consistent pattern of increase or decrease of individuals' initially prominent characteristics or the extent of their differences within the groups.

Each of the models predicts a strong, though different, relationship between the extent of initial group differences and the extent of subsequent change in those differences over time. The analyses of the data sets in this study indicate no consistent relationship between the two dimensions.

The question remains as to whether the models are inaccurate or merely insufficient. Their lack of predictive power regarding the processes at work in these data sets may be due to inherent limitations in the models themselves and to apparent limitations in the data sets as well.

Limitations of the Models and the Data Sets

The limitations of these alternative models of accentuation can be seen in their great simplicity. In answering the questions of why there should be observed differences among groups entering different educational settings and why these differences should increase over time, the models characterize both the individuals and the settings involved in one-dimensional terms. The individuals in the entering groups are regarded simply in terms of their standing on a particular dimension and the environments also are characterized solely with respect to that particular dimension. The selection of individuals into the various settings is then accounted for by the interaction between the individuals and the settings with respect to the dimensions in question. The models fail to account for the complexity of the selection process and the diversity of reasons which lead to the presence of any group of individuals in a given educational setting. The more typical multiple bases of attraction into a particular educational environment for both individuals and groups must be taken into account.

Another limitation is that the models fail to take into account the multiple nature of social environments, that the particular settings in question are conceived to be in isolation rather than in relation to the other environments and sub-environments in which the individual finds himself at a given period or moment. The typical college student finds

himself situated not only within a particular college but also within a particular residence hall, academic department and friendship group as well, and the extent to which any of these serves as a reference group can vary considerably from individual to individual. This suggests, then, that those within the same physical setting may not share at all the same subjective environment.

The models also assume that the pressures or norms within educational settings are perceived in a similar manner by all within these settings, so that the settings can be characterized by one set of pressures which exerts a similar influence upon all in the setting. They imply as well that individuals have the same tendency to conform to normative influences in social settings or to be affected by pressures for change in their environments. Individual differences in these respects may also serve to limit the explanatory power of the models.

The complexity of the processes of selection and change in educational settings may not have been the only limiting factor for the use of the models. The data sets themselves may not have been optimal for discerning the processes predicted by the models. The analyses have indicated that the differences between the groups entering the different settings, though widespread, were nevertheless quite small in most instances, and the change in those differences was seldom great. The patterns of selection and change that might be apparent where differences are more pronounced could well be obscured in cases where the differences are slight.

The measures employed in the data sets have their limitations as well. The consistency of the negative correlations between individuals' initial scores and gain scores, regardless of whether the dispersion of scores increased or decreased, suggests that ceiling effects and regression effects in the measures substantially affected the patterns of differential change on the measures within the groups.

The instances of striking differences between the panel analyses and the longitudinal analyses in some of the data sets have also raised questions about those data sets. It appears that at least some of the differences between initial samples and follow-up samples may be due to systematic bias in the sampling procedures for the later measures. If this is the case, whatever processes of selection and change are operative in those settings may well be obscured by the problems of accurate assessment of the patterns of selection and change in those settings.

CONCLUSIONS

The analyses in this study have demonstrated that there was no consistent relationship between patterns of selection and change at the group level and patterns of selection and change at the individual level in these data sets. Although it appears possible to have accentuation at the group level based on accentuation at the individual level, no instances of this were found in the data sets. Although there were instances of accentuation at the group level accompanied by a minimization of differences at the individual level, this did not consistently occur. In most instances of accentuation of group differences, that change took place with no corresponding change in the distribution of individuals within the groups.

It is clear that neither of the proposed models of accentuation has any real explanatory power for the data analyzed in this study. The instances of accentuation at the group level documented in these data sets have tended to occur through a general increase in the scores of most individuals within the particular group rather than by a differential increase in scores within the group, suggesting that the basic processes of accentuation in these data were pervasive and uniform throughout the groups. It is quite possible, however, that the processes assumed by either of the models may play some role in accentuation and yet have been submerged in these data by the impact of other, more predominant processes of selection and change.

The two models are based upon presumed patterns of change among individuals within groups. They differ primarily in the nature and direction of differential gain expected on the part of individuals within the different settings. The models do not encompass other possible patterns of selection and change which might account for the occurrence of accentuation. They simply suggest means whereby particular patterns of differential change at the group level could result from different patterns of differential change at the individual level.

It is important to note that the phenomenon of accentuation of initial group differences concerns patterns of change in mean scores over time and that the observed change in differences in scores may be attributed to several different factors. Among these would be not only the actual patterns of change on the part of individuals but also patterns of change in the composition of the groups, sampling error leading to unrepresentative pre-test or post-test samples, and measurement error due to the unreliability of measures, regression effects and ceiling and floor effects. The results of the analyses in this study suggest that each of these factors may have played some role in the patterns of selection and change found in these data sets.

In many ways this study has raised more issues than it has resolved, and the distinctive processes which produce the phenomenon of accentuation have been made only slightly clearer than before. Yet it has served to throw into question some assumptions regarding these processes and to suggest some alternative lines of thought. Perhaps the major contribution of the present study is its delineation of the complexities of the accentuation process and its suggestion of relevant factors to be considered in future studies.

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TABLES

The tables on the following pages present the analyses which form the basis for this study. For each of the four data sets, a series of analyses including both longitudinal and panel data is presented.

The first table in each series outlines the pre-test and post-test differences between the groups on each of the measures for the longitudinal data. The extent of each difference is indicated by the omega square estimate; the likelihood that this difference might have arisen by chance differences in sampling procedures is indicated by the F-ratio and its corresponding significance level. The second table presents parallel analyses for the panel data in the data set.

The third table in each series indicates the correlations at the group level and the change in the differences between the groups for the longitudinal data. The correlation between the groups' pre-test mean and post-test mean on each measure and that between their pre-test mean and their mean change score are outlined; where there are only two groups, the relationships are indicated by a positive or negative sign. The extent of change in the differences is indicated by the numeric difference between the initial and later omega square estimates. The F-ratio is based upon the interaction effects found in a two-way analysis of variance table.

The fourth table presents analyses of the panel data which parallel those for the longitudinal data. In this case, however, the F-ratio is that from analysis of covariance procedures, indicating the statistical significance of the post-test differences when the influence of the initial difference between the groups is removed.

The fifth and sixth tables of each series present for each measure the pre-test means, the post-test means, and the change in those means for the longitudinal data and the panel data in turn. The seventh and eighth tables indicate the corresponding pre-test variance, post-test variance, and change in variance on each measure.

The final table in each series presents the correlations at the individual level. For each measure the correlation between individuals' pre-test scores and post-test scores and the correlation between their pre-test score and their change score are indicated. In each case the statistical significance of these sample correlations is reflected in the t-test and its significance level.

TABLE 1. 1971 Freshman-Sophomore Longitudinal Data
Pre-test Differences and Post-test Differences

Measure	Pre-test Differences				Post-test Differences			
	N	Omega Square	F Ratio	Signif. Level	N	Omega Square	F Ratio	Signif. Level
Family Ind.	529	.39	3.10	.0790	316	1.82	6.85	.0093
Peer Ind.	528	1.18	7.29	.0072	316	.00	.19	.6665
Liberalism	518	1.31	7.89	.0052	311	6.22	21.61	.0000
Social Cons.	524	1.18	7.27	.0072	314	2.48	8.99	.0029
Cultural Soph.	530	1.26	7.79	.0055	317	2.65	9.64	.0021
Vocational	525	1.36	8.24	.0043	324	1.64	6.40	.0119
Academic	525	1.61	9.59	.0021	325	.95	4.11	.0435
Collegiate	524	2.55	14.72	.0001	325	1.40	5.63	.0182
Non-Conformist	525	4.01	22.95	.0000	325	1.31	5.33	.0216
Thinking Intr.	518	2.17	12.50	.0004	206	1.89	4.96	.0271
Theor. Orient.	518	1.85	10.76	.0011	206	4.30	10.26	.0016
Estheticism	518	1.89	10.96	.0010	206	1.71	4.58	.0336
Complexity	518	2.85	16.19	.0001	206	8.40	19.89	.0000
Autonomy	518	1.04	6.46	.0113	206	4.98	11.80	.0007
Religious Or.	518	.04	1.18	.2772	206	5.37	12.68	.0005
Social Extr.	518	.06	1.32	.2515	206	.31	1.64	.2018
Impulse Exp.	518	.12	1.64	.2005	206	1.71	4.59	.0334
Personal Int.	518	.02	1.11	.2922	206	1.48	4.09	.0446
Anxiety Level	518	.00	.30	.5813	206	.00	.95	.3306
Altruism	518	.66	4.46	.0351	206	.00	.03	.8660
Prac. Outlook	518	2.19	12.62	.0004	206	5.12	12.12	.0006
Masc. - Fem.	518	.00	.53	.4674	206	.00	.77	.3799
Resp. Bias	518	.06	1.29	.2557	206	.00	.30	.5859
Anxiety	518	.20	2.04	.1535	206	1.63	4.41	.0370
Intellectualism	518	2.77	15.77	.0001	206	2.41	6.08	.0145
Authoritarianism	518	.69	4.61	.0323	206	7.44	17.57	.0000
Sociability	518	.07	1.35	.2460	206	.45	1.92	.1671

TABLE 2. 1971 Freshman-Sophomore Panel Data
Pre-test Differences and Post-test Differences

Measurement	Pre-test Differences				Post-test Differences			
	N	Omega Square	F Ratio	Signif. Level	N	Omega Square	F Ratio	Signif. Level
Family Ind.	315	.56	2.78	.0962	315	1.81	6.81	.0095
Peer Ind.	314	.80	3.54	.0608	314	.00	.32	.5711
Liberalism	301	2.50	8.72	.0034	301	7.22	24.43	.0000
Social Cons.	310	2.76	9.81	.0019	310	2.95	10.41	.0014
Cultural Soph.	317	1.88	7.08	.0082	317	2.62	9.53	.0022
Vocational	314	2.41	8.74	.0033	314	2.03	7.51	.0065
Academic	315	1.04	4.31	.0386	315	.92	3.93	.0482
Collegiate	315	1.79	6.74	.0099	315	1.41	5.50	.0196
Non-Conformist	315	4.79	16.85	.0001	315	1.63	6.21	.0132
Thinking Intr.	201	.76	2.53	.1131	201	1.78	4.65	.0322
Theor. Orient.	201	2.12	5.36	.0217	201	4.77	11.08	.0010
Estheticism	201	1.24	3.52	.0620	201	1.78	4.65	.0323
Complexity	201	2.96	7.12	.0082	201	8.22	19.03	.0000
Autonomy	201	2.54	6.23	.0134	201	4.25	9.92	.0019
Religious Orient.	201	1.43	3.92	.0490	201	5.38	12.44	.0005
Social Extr.	201	.00	.41	.5231	201	.46	1.93	.1664
Impulse Exp.	201	.54	2.09	.1497	201	1.97	5.04	.0259
Personal Int.	201	.00	.47	.4920	201	2.37	5.88	.0162
Anxiety Level	201	.00	.01	.9391	201	.47	1.95	.1641
Altruism	201	.28	1.56	.2132	201	.00	.09	.7603
Prac. Outlook	201	4.71	10.95	.0011	201	4.30	10.02	.0018
Masc. - Fem.	201	.00	.05	.8234	201	.00	.90	.3448
Resp. Bias	201	.00	.00	.9915	201	.00	.38	.5395
Anxiety	201	.12	1.24	.2660	201	2.66	6.50	.0116
Intellectualism	201	1.61	4.29	.0396	201	2.40	5.94	.0157
Authoritarianism	201	3.29	7.84	.0056	201	6.91	15.92	.0001
Sociability	201	.00	.27	.6042	201	.64	2.30	.1310

TABLE 3. 1971 Freshman-Sophomore Longitudinal Data
Mean Correlations and Changes in Differences

Measure	Mean Correlations			Change in Differences			
	N	Pre/Post	Pre/Gain	N	Omega Square	F Ratio	Signif. Level
Family Ind.	845	+	+	845	1.43	.93	.3379
Peer Ind.	847	+	-	847	-1.18	2.00	.1594
Liberalism	829	+	+	829	4.91	2.92	.0897
Social Cons.	838	+	+	838	1.30	.33	.5658
Cultural Soph.	849	+	+	849	1.39	.48	.4886
Vocational	849	+	+	849	.28	.02	.9102
Academic	850	+	-	850	-.66	.11	.7415
Collegiate	849	+	-	849	-1.15	.31	.5762
Non-Conformist	850	+	-	850	-2.70	.67	.4210
Thinking Intr.	724	+	+	724	-.28	.11	.7415
Theor. Orient.	724	+	+	724	2.45	1.38	.2515
Estheticism	724	+	+	724	-.18	.01	.9391
Complexity	724	+	+	724	5.55	4.09	.0440
Autonomy	724	+	+	724	3.94	2.12	.1466
Religious Orient.	724	+	+	724	5.33	5.56	.0191
Social Extr.	724	+	+	724	.25	.30	.5813
Impulse Exp.	724	+	+	724	1.59	1.17	.2793
Personal Int.	724	+	+	724	1.46	1.48	.2257
Anxiety Level	724	+	+	724	.00	.40	.5286
Altruism	724	-	-	724	-.66	1.57	.2116
Prac. Outlook	724	+	+	724	2.93	2.35	.1271
Masc.-Fem.	724	+	+	724	.00	.13	.7228
Resp. Bias	724	-	-	724	-.06	1.15	.2836
Anxiety	724	+	+	724	1.43	1.05	.3072
Intellectualism	724	+	+	724	-.36	.00	.9915
Authoritarianism	724	+	+	724	6.75	4.37	.0375
Sociability	724	+	+	724	.38	.34	.5606

TABLE 4. 1971 Freshman-Sophomore Panel Data
Mean Correlations and Changes in Differences

Measure	Mean Correlations			Change in Differences			
	N	Pre/Post	Pre/Gain	N	Omega Square	F Ratio	Signif. Level
Family Ind.	315	+	+	315	1.25	4.02	.0458
Peer Ind.	314	+	-	314	-.80	.69	.4072
Liberalism	301	+	+	301	4.72	17.04	.0000
Social Cons.	310	+	-	310	.19	2.77	.0968
Cultural Soph.	317	+	+	317	.74	2.45	.1184
Vocational	314	+	-	314	-.06	2.64	.1053
Academic	315	+	-	315	-.12	2 26	.1340
Collegiate	315	+	-	315	-.38	1.51	.2194
Non-Conformist	315	+	-	315	-3.16	.26	.6133
Thinking Intr.	201	+	+	201	1.02	2.09	.1503
Theor. Orient.	201	+	+	201	2.65	5.56	.0194
Estheticism	201	+	+	201	.54	1.19	.2761
Complexity	201	+	+	201	5.26	11.92	.0007
Autonomy	201	+	+	201	1.71	3.87	.0505
Religious Orient.	201	+	+	201	3.95	9.03	.0030
Social Extr.	201	+	+	201	.46	1.71	.1925
Impulse Exp.	201	+	+	201	1.43	2.92	.0890
Personal Int.	201	+	+	201	2.37	7.02	.0087
Anxiety Level	201	+	+	201	.47	2.69	.1024
Altruism	201	-	-	201	-.28	1.88	.1720
Prac. Outlook	201	+	+	201	-.41	1.44	.2319
Masc. - Fem.	201	+	+	201	.00	1.72	.1915
Resp. Bias	201	+	+	201	.00	.55	.4605
Anxiety	201	+	+	201	2.54	5.84	.0165
Intellectualism	201	+	+	201	.79	1.65	.2009
Authoritarianism	201	+	+	201	3.62	7.82	.0057
Sociability	201	+	+	201	.64	2.66	.1046

TABLE 5. 1971 Freshman-Sophomore Longitudinal Data
Pre-test Means, Post-test Means, and Change in Means

	Pre-test Means		Post-test Means		Change in Means		
Measure	N	Means	N	Means	Gain	F Ratio	Signif. Level
Family Indep.							
RC	195	24.877	150	25.427	.550	.98	.3235
LSA	334	24.051	166	23.873	-.178	.12	.7248
Peer Indep.							
RC	194	26.485	150	25.167	-1.318	9.38	.0024
LSA	334	25.425	166	24.970	-.455	1.18	.2787
Liberalism							
RC	192	28.719	145	30.979	2.260	13.62	.0003
LSA	326	27.334	166	28.277	.943	3.73	.0541
Social Cons.							
RC	193	29.788	148	30.277	.489	1.02	.3139
LSA	331	28.659	166	28.771	.112	.06	.7986
Cultural Soph.							
RC	195	25.677	150	26.647	.970	2.96	.0864
LSA	335	24.373	167	24.826	.453	.85	.3580
Vocational							
RC	194	2.696	157	2.834	.138	1.59	.2077
LSA	331	2.432	167	2.551	.119	1.55	.2140
Academic							
RC	194	1.907	157	2.076	.169	3.34	.0684
LSA	331	2.145	168	2.274	.129	2.51	.1140
Collegiate							
RC	194	2.283	157	2.191	-.092	.62	.4329
LSA	330	1.918	168	1.911	-.007	.01	.9390
Non-Conformist							
RC	194	3.083	157	2.930	-.153	1.51	.2201
LSA	331	3.501	168	3.226	-.275	9.24	.0025
Thinking Intr.							
RC	191	28.681	79	28.063	-.617	.47	.4935
LSA	327	26.615	127	25.614	-1.001	1.96	.1623
Theor. Orient.							
RC	191	20.958	79	21.430	.472	.51	.4746
LSA	327	19.511	127	18.984	-.527	1.01	.3164
Estheticism							
RC	191	15.089	79	15.570	.481	.58	.4476
LSA	327	13.664	127	14.055	.391	.60	.4383
Complexity							
RC	191	18.335	79	20.430	2.095	6.14	.0138
LSA	327	16.242	127	16.299	.057	.01	.9230

TABLE 5. Continued

Autonomy							
RC	191	29.325	79	34.329	5.005	36.22	.0000
LSA	327	27.850	127	31.299	3.449	26.88	.0000
Religious Orient.							
RC	191	14.356	79	18.127	3.771	26.42	.0000
LSA	327	13.813	127	15.409	1.596	7.98	.0049
Social Extr.							
RC	191	22.089	79	19.076	-3.013	9.19	.0027
LSA	327	22.823	127	20.430	-2.342	10.06	.0016
Impulse Expr.							
RC	191	29.309	79	33.696	4.387	12.70	.0004
LSA	327	28.251	127	30.984	2.734	8.67	.0034
Personal Int.							
RC	191	29.880	79	27.987	-1.892	2.01	.1578
LSA	327	30.844	127	31.055	.211	.04	.8451
Anxiety Level							
RC	191	11.759	79	10.532	-1.227	4.97	.0266
LSA	327	11.966	127	11.197	-.769	2.77	.0970
Altruism							
RC	191	22.204	79	21.177	-1.027	1.99	.1597
LSA	327	21.208	127	21.315	.107	.04	.8458
Prac. Outlook							
RC	191	11.749	79	9.228	-2.521	13.82	.0002
LSA	327	13.266	127	12.039	-1.227	5.68	.0175
Masc. - Fem.							
RC	191	26.047	79	25.139	-.908	1.10	.2943
LSA	327	26.489	127	25.992	-.497	.48	.4873
Resp. Bias							
RC	191	13.791	79	12.241	-1.550	7.67	.0060
LSA	327	13.349	127	12.575	-.774	2.94	.0871
Anxiety							
RC	191	12.534	79	14.177	1.643	4.85	.0284
LSA	327	11.765	127	12.378	.613	.92	.3392
Intellectualism							
RC	191	17.168	79	16.203	-.965	1.59	.2079
LSA	327	15.076	127	14.047	-1.650	2.72	.0996
Authoritarianism							
RC	191	10.356	79	5.924	-4.432	34.07	.0000
LSA	327	11.505	127	9.102	-2.402	16.02	.0001
Sociability							
RC	191	18.042	79	15.519	-2.523	8.38	.0041
LSA	327	18.706	127	16.811	-1.895	8.43	.0039

TABLE 6. 1971 Freshman-Sophomore Panel Data
Pre-test Means, Post-test Means, and Change in Means

Measure	Pre-test Means		Post-test Means		Change in Means		
	N	Means	N	Means	Gain	F Ratio	Signi.. Level
Family Indep.							
RC	151	24.629	151	25.404	.775	1.76	.1853
LSA	164	23.677	164	23.854	.177	.09	.7606
Peer Indep.							
RC	150	26.127	150	25.187	-.940	4.39	.0370
LSA	164	25.213	164	24.927	-.286	.34	.5582
Liberalism							
RC	144	28.660	144	31.014	2.354	12.51	.0005
LSA	157	26.777	157	28.115	1.338	5.67	.0178
Social Cons.							
RC	148	29.946	148	30.311	.365	.51	.4764
LSA	162	28.309	162	28.679	.370	.52	.4721
Cultural Soph.							
RC	151	25.556	151	26.636	1.080	3.23	.0734
LSA	166	24.036	166	24.825	.789	2.00	.1579
Vocational							
RC	151	2.642	151	2.867	.225	3.70	.0552
LSA	163	2.313	163	2.558	.245	5.21	.0231
Academic							
RC	151	1.960	151	2.079	.119	1.41	.2366
LSA	164	2.165	164	2.274	.109	1.30	.2546
Collegiate							
RC	151	2.205	151	2.172	-.033	.07	.7919
LSA	164	1.902	164	1.890	-.012	.01	.9132
Non-Conformist							
RC	151	3.179	151	2.914	-.265	4.05	.0450
LSA	164	3.616	164	3.238	-.378	12.63	.0004
Thinking Intr.							
RC	79	27.709	79	28.190	.481	.17	.6766
LSA	122	26.189	122	25.803	-.386	.18	.6725
Theor. Orient.							
RC	79	21.076	79	21.481	.405	.24	.6255
LSA	122	19.451	122	18.902	-.549	.72	.3979
Estheticism							
RC	79	14.759	79	15.684	.924	1.55	.2145
LSA	122	13.410	122	14.164	.754	1.33	.2491
Complexity							
RC	79	17.785	79	20.532	2.747	7.14	.0083
LSA	122	15.492	122	16.475	.983	1.63	.2036

TABLE 6. Continued

Autonomy							
RC	79	29.430	79	34.316	4.886	24.94	.0000
LSA	122	27.098	122	31.508	4.410	28.66	.0000
Religious Orient.							
RC	79	14.633	79	18.114	3.481	16.20	.0001
LSA	122	12.984	122	15.385	2.401	11.03	.0010
Social Extr.							
RC	79	21.241	79	19.089	-2.152	3.32	.0703
LSA	122	21.885	122	20.631	-1.254	1.80	.1805
Impulse Exp.							
RC	79	28.696	79	33.722	5.026	12.40	.0006
LSA	122	26.869	122	30.844	3.975	12.70	.0004
Personal Int.							
RC	79	29.354	79	27.722	-1.632	1.01	.3159
LSA	122	30.402	122	31.426	1.024	.55	.4586
Anxiety Level							
RC	79	11.797	79	10.342	-1.455	4.39	.0378
LSA	122	11.844	122	11.287	-.557	.92	.3378
Altruism							
RC	79	21.924	79	21.215	-.709	.62	.4325
LSA	122	20.975	122	21.467	.492	.51	.4758
Prac. Outlook							
RC	79	11.861	79	9.253	-2.608	9.14	.0029
LSA	122	14.107	122	11.820	-2.287	12.69	.0004
Masc.-Fem.							
RC	79	26.456	79	24.937	-1.519	2.09	.1503
LSA	122	26.672	122	25.852	-.820	.90	.3449
Resp. Bias							
RC	79	13.633	79	12.215	-1.418	4.38	.0380
LSA	122	13.639	122	12.598	-1.041	3.67	.0565
Anxiety							
RC	79	12.671	79	14.392	1.721	3.82	.0524
LSA	122	11.680	122	12.197	.517	.40	.5273
Intellectualism							
RC	79	16.519	79	16.316	-.203	.05	.8277
LSA	122	14.713	122	14.180	-.533	.45	.5019
Authoritarianism							
RC	79	10.165	79	5.962	-4.203	23.45	.0000
LSA	122	12.582	122	9.033	-3.549	22.90	.0000
Sociability							
RC	79	17.329	79	15.494	-1.835	3.19	.0759
LSA	122	17.795	122	16.926	-.869	1.15	.2849

TABLE 7. 1971 Freshman-Sophomore Longitudinal Data
Pre-test Variance, Post-test Variance, and Change in Variance

Measure	Pre-test Variance N	Pre-test Variance Variance	Post-test Variance N	Post-test Variance Variance	Change in Variance Gain	Change in Variance F Ratio	Change in Variance Signif. Level
Family Indep.							
RC	195	26.222	150	26.206	-.016	.00	.9969
LSA	334	27.640	166	29.117	1.477	.15	.6985
Peer Indep.							
RC	194	16.966	150	13.979	-2.987	1.56	.2121
LSA	334	20.023	166	18.587	-1.436	.30	.5825
Liberalism							
RC	192	32.685	145	28.743	-3.942	.67	.4125
LSA	326	27.405	166	23.886	-3.519	1.01	.3138
Social Cons.							
RC	193	19.824	148	19.603	-.221	.01	.9423
LSA	331	22.262	166	19.862	-2.400	.70	.4013
Cultural Soph.							
RC	195	26.508	150	27.532	1.024	.06	.8059
LSA	335	27.133	167	26.855	-.278	.01	.9391
Vocational							
RC	194	1.083	157	.998	-.085	.29	.5919
LSA	331	1.004	167	1.032	.028	.04	.8361
Academic							
RC	194	.717	157	.776	.059	.27	.6009
LSA	331	.724	168	.763	.039	.15	.6990
Collegiate							
RC	194	1.220	157	1.181	-.039	.04	.8334
LSA	330	1.042	168	1.088	.046	.10	.7482
Non-Conformist							
RC	194	1.216	157	1.488	.272	1.77	.1833
LSA	331	.772	168	1.194	.422	10.96	.0009
Thinking Intr.							
RC	191	36.166	79	67.547	31.381	11.56	.0007
LSA	327	44.109	127	53.572	9.463	1.76	.1847
Theor. Orient.							
RC	191	21.556	79	31.018	9.462	3.82	.0507
LSA	327	24.582	127	26.809	2.227	.34	.5569
Estheticism							
RC	191	22.166	79	22.684	.518	.01	.9033
LSA	327	22.463	127	25.465	3.002	.73	.3942
Complexity							
RC	191	36.266	79	48.915	12.649	2.56	.1095
LSA	327	30.540	127	37.386	6.846	1.91	.1673

TABLE 7. Continued

Autonomy							
RC	191	41.305	79	32.147	-9.158	1.67	.1967
LSA	327	40.116	127	41.434	1.318	.05	.8273
Religious Orient.							
RC	191	32.083	79	25.189	-6.894	1.55	.2125
LSA	327	28.784	127	30.307	1.523	.12	.7276
Social Extr.							
RC	191	53.376	79	59.763	6.387	.36	.5502
LSA	327	46.821	127	57.823	11.002	2.08	.1493
Impulse Exp.							
RC	191	87.004	79	79.189	-7.815	.24	.6238
LSA	327	79.366	127	77.444	-1.922	.03	.8692
Personal Int.							
RC	191	98.822	79	102.010	3.188	.03	.8673
LSA	327	102.100	127	118.480	16.380	1.02	.311
Anxiety Level							
RC	191	14.447	79	22.996	8.549	6.30	.0121
LSA	327	18.480	127	22.445	3.965	1.76	.1847
Altruism							
RC	191	25.858	79	38.891	13.033	4.83	.0280
LSA	327	27.380	127	28.329	.949	.05	.8182
Prac. Outlook							
RC	191	22.337	79	33.870	11.533	5.03	.0250
LSA	327	21.803	127	30.483	8.680	5.33	.0210
Masc.-Fem.							
RC	191	39.656	79	46.762	7.106	.76	.3819
LSA	327	47.435	127	45.135	-2.300	.11	.7389
Resp. Bias							
RC	191	17.030	79	18.698	1.668	.24	.6218
LSA	327	18.866	127	18.024	-.842	.09	.7595
Anxiety							
RC	191	32.461	79	27.737	-4.724	.67	.4147
LSA	327	36.395	127	40.729	4.334	.58	.4452
Intellectualism							
RC	191	31.024	79	36.625	5.601	.77	.3787
LSA	327	34.825	127	37.553	2.728	.26	.6098
Authoritarianism							
RC	191	35.252	79	24.840	-10.412	3.20	.0736
LSA	327	34.110	127	29.966	-4.144	.75	.3879
Sociability							
RC	191	42.282	79	42.894	.612	.01	.9399
LSA	327	37.846	127	41.932	4.086	.48	.4869

TABLE 8. 1971 Freshman-Sophomore Panel Data
Pre-test Variance, Post-test Variance, and Change in Variance

	Pre-test Variance		Post-test Variance		Change in Variance		
Measure	N	Variance	N	Variance	Gain	F Ratio	Signif. Level
Family Indep.							
RC	151	25.328	151	26.109	.781	.03	.8527
LSA	164	25.852	164	29.291	3.439	.63	.4261
Peer Indep.							
RC	150	16.152	150	14.032	-2.120	.73	.3916
LSA	164	20.549	164	18.657	-1.892	.38	.5382
Liberalism							
RC	144	34.492	144	29.328	-5.164	.94	.3334
LSA	157	26.892	157	22.641	-4.251	1.15	.2836
Social Conscience							
RC	148	19.167	148	19.617	.450	.02	.8883
LSA	162	22.923	162	19.946	-2.977	.78	.3784
Cultural Soph.							
RC	151	27.155	151	27.366	.211	.00	.9622
LSA	166	24.581	166	27.018	2.437	.37	.5444
Vocational							
RC	151	1.098	151	.969	-.129	.58	.4452
LSA	163	.858	163	1.026	.168	1.28	.2573
Academic							
RC	151	.745	151	.780	.035	.08	.7776
LSA	164	.776	164	.740	-.036	.09	.7608
Collegiate							
RC	151	1.191	151	1.184	-.007	.00	.9695
LSA	164	.960	164	1.092	.132	.68	.4102
Non-Conformist							
RC	151	1.121	151	1.493	.372	3.05	.0808
LSA	164	.680	164	1.176	.496	12.07	.0005
Thinking Intr.							
RC	79	39.235	79	65.463	26.228	5.02	.0250
LSA	122	46.683	122	54.391	7.708	.70	.4019
Theor. Orient.							
RC	79	23.430	79	30.766	7.336	1.43	.2313
LSA	122	23.787	122	27.527	3.740	.64	.4230
Estheticism							
RC	79	22.621	79	20.809	-1.812	.14	.7133
LSA	122	26.211	122	25.775	-.436	.01	.9266
Complexity							
RC	79	36.710	79	46.765	10.055	1.13	.2872
LSA	122	34.566	122	38.053	3.487	.28	.5979

TABLE 8. Continued

Autonomy							
RC	79	43.325	79	32.296	-11.029	1.67	.1967
LSA	122	40.916	122	41.872	.956	.02	.8991
Religious Orient.							
RC	79	34.030	79	25.077	-8.953	1.80	.1798
LSA	122	32.744	122	31.032	-1.712	.09	.7683
Social Extr.							
RC	79	50.416	79	59.723	9.307	.56	.4561
LSA	122	47.590	122	58.780	11.190	1.34	.2469
Impulse Expr.							
RC	79	81.599	79	79.255	-2.344	.02	.8979
LSA	122	73.288	122	78.513	5.225	.14	.7055
Personal Int.							
RC	79	102.640	79	105.430	2.790	.01	.9060
LSA	122	116.310	122	116.110	-.200	.00	.9927
Anxiety Level							
RC	79	15.164	79	22.971	7.807	3.32	.0685
LSA	122	19.769	122	21.314	1.545	.17	.6797
Altruism							
RC	79	25.635	79	38.453	12.818	3.16	.0753
LSA	122	28.983	122	28.863	-.120	.00	.9818
Prac. Outlook							
RC	79	24.352	79	34.422	10.070	2.31	.1286
LSA	122	20.641	122	29.637	8.996	3.92	.0477
Masc.-Fem.							
RC	79	44.123	79	43.086	-1.037	.01	.9166
LSA	122	45.545	122	45.978	.433	.00	.9585
Resp. Bias							
RC	79	17.492	79	18.761	1.269	.10	.7579
LSA	122	17.439	122	18.556	1.117	.12	.7332
Anxiety							
RC	79	33.019	79	28.267	-4.752	.47	.4943
LSA	122	40.897	122	40.292	-.605	.01	.9348
Intellectualism							
RC	79	33.535	79	34.604	1.069	.02	.8902
LSA	122	38.289	122	38.281	-.008	.00	.9991
Authoritarianism							
RC	79	34.780	79	24.729	-10.051	2.24	.1342
LSA	122	36.344	122	30.759	-5.585	.84	.3601
Sociability							
RC	79	40.352	79	43.022	2.670	.08	.7779
LSA	122	37.520	122	42.664	5.144	.50	.4808

TABLE 9. 1971 Freshman-Sophomore Panel Data
Pre/Post and Pre/Gain Correlations for Individuals

Measure	Pre/Post Correlations				Pre/Gain Correlations			
	N	Corr.	T Stat.	Signif. Level	N	Corr.	T Stat.	Signif. Level
Family Ind.								
RC	151	.70	11.96	.0000	151	-.37	4.87	.0000
LSA	164	.70	12.56	.0000	164	-.32	4.24	.0000
Peer Ind.								
RC	150	.61	9.34	.0000	150	-.50	7.11	.0000
LSA	164	.67	11.34	.0000	164	-.46	6.55	.0000
Liberalism								
RC	144	.83	17.56	.0000	144	-.42	5.45	.0000
LSA	157	.71	12.53	.0000	157	-.48	6.72	.0000
Social Cons.								
RC	148	.65	10.34	.0000	148	-.41	5.38	.0000
LSA	162	.55	8.33	.0000	162	-.53	7.90	.0000
Cultural Soph.								
RC	151	.81	16.60	.0000	151	-.31	3.92	.0001
LSA	166	.83	18.70	.0000	166	-.22	2.92	.0040
Vocational								
RC	151	.41	5.53	.0000	151	-.58	8.73	.0000
LSA	163	.43	6.06	.0000	163	-.47	6.80	.0000
Academic								
RC	151	.31	3.98	.0001	151	-.57	8.56	.0000
LSA	164	.19	2.48	.0143	164	-.65	10.80	.0000
Collegiate								
RC	151	.50	7.01	.0000	151	-.50	7.11	.0000
LSA	164	.47	6.76	.0000	164	-.47	6.75	.0000
Non-Conformist								
RC	151	.58	8.67	.0000	151	-.33	4.31	.0000
LSA	164	.39	5.41	.0000	164	-.37	5.11	.0000
Thinking Intr.								
RC	79	.77	10.43	.0000	79	-.01	.12	.9017
LSA	122	.76	12.86	.0000	122	-.25	2.79	.0061
Theor. Orient.								
RC	79	.75	9.86	.0000	79	-.19	1.66	.1010
LSA	122	.62	8.67	.0000	122	-.37	4.32	.0000
Estheticism								
RC	79	.74	9.73	.0000	79	-.41	3.93	.0002
LSA	122	.80	14.73	.0000	122	-.33	3.78	.0002
Complexity								
RC	79	.73	9.51	.0000	79	-.22	1.96	.0542
LSA	122	.72	11.26	.0000	122	-.32	3.71	.0003

TABLE 9. Continued

Autonomy								
RC	79	.59	6.48	.0000	79	-.57	6.15	.0000
LSA	122	.70	10.61	.0000	122	-.38	4.47	.0000
Religious Orient.								
RC	79	.59	6.48	.0000	79	-.58	6.23	.0000
LSA	122	.81	15.13	.0000	122	-.35	4.06	.0001
Social Extr.								
RC	79	.71	8.86	.0000	79	-.28	2.60	.0113
LSA	122	.68	10.23	.0000	122	-.28	3.26	.0015
Impulse Exp.								
RC	79	.74	9.56	.0000	79	-.38	3.61	.0005
LSA	122	.66	9.62	.0000	122	-.38	4.46	.0000
Personal Int.								
RC	79	.67	7.95	.0000	79	-.39	3.73	.0004
LSA	122	.68	10.15	.0000	122	-.40	4.80	.0000
Anxiety Level								
RC	79	.55	5.78	.0000	79	-.30	2.76	.0072
LSA	122	.58	7.86	.0000	122	-.42	5.13	.0000
Altruism								
RC	79	.66	7.72	.0000	79	-.20	1.82	.0720
LSA	122	.60	8.20	.0000	122	-.45	5.51	.0000
Prac. Outlook								
RC	79	.61	6.73	.0000	79	-.28	2.57	.0121
LSA	122	.74	12.15	.0000	122	-.14	1.50	.1351
Masc. - Fem.								
RC	79	.84	13.71	.0000	79	-.30	2.76	.0072
LSA	122	.80	14.36	.0000	122	-.31	3.62	.0004
Resp. Bias								
RC	79	.59	6.36	.0000	79	-.42	4.10	.0001
LSA	122	.56	7.43	.0000	122	-.44	5.40	.0000
Anxiety								
RC	79	.64	7.34	.0000	79	-.50	5.02	.0000
LSA	122	.69	10.40	.0000	122	-.40	4.82	.0000
Intellectualism								
RC	79	.80	11.58	.0000	79	-.30	2.72	.0080
LSA	122	.80	14.53	.0000	122	-.32	3.67	.0004
Authoritarianism								
RC	79	.67	7.91	.0000	79	-.57	6.10	.0000
LSA	122	.80	14.51	.0000	122	-.43	5.25	.0000
Sociability								
RC	79	.74	9.75	.0000	79	-.32	2.95	.0042
LSA	122	.69	10.56	.0000	122	-.32	3.71	.0003

TABLE 10. 1971 Freshman-Senior Longitudinal Data
Pre-test Differences and Post-test Differences

Measure	Pre-test Differences				Post-test Differences			
	N	Omega Square	F Ratio	Signif. Level	N	Omega Square	F Ratio	Signif. Level
Family Ind.	529	.39	3.10	.0790	115	.00	.27	.6015
Peer Ind.	528	1.18	7.29	.0072	115	.00	.89	.3462
Liberalism	518	1.31	7.89	.0052	115	.95	2.11	.1495
Social Cons.	524	1.18	7.27	.0072	115	2.17	3.55	.0620
Cultural Soph.	530	1.26	7.79	.0055	115	3.88	5.65	.0192
Vocational	525	1.36	8.24	.0043	114	.25	1.29	.2591
Academic	525	1.61	9.59	.0021	114	.40	1.46	.2300
Collegiate	524	2.55	14.72	.0001	113	5.94	8.13	.0052
Non-Conformist	525	4.01	22.95	.0000	114	6.62	9.08	.0032
Anxiety	518	.20	2.04	.1535	115	.00	.17	.6835
Intellectualism	518	2.77	15.77	.0001	115	.00	.57	.4502
Authoritarianism	518	.69	4.61	.0323	115	1.85	3.16	.0780
Sociability	518	.07	1.35	.2460	115	.00	.75	.3883
Career	446	.00	.00	.9749	107	.00	.28	.6003
Religion	441	.00	.07	.7960	108	.00	.64	.4269
Ideas	452	.46	3.11	.0785	108	.00	.92	.3402
Citizen	453	.00	.67	.4141	107	.00	.07	.7847
Arts	452	1.34	7.15	.0078	108	.00	.25	.6149
National	441	1.12	6.01	.0146	108	.00	.07	.7917

TABLE 11. 1971 Freshman-Senior Panel Data
Pre-test Differences and Post-test Differences

Measure	Pre-test Differences				Post-test Differences			
	N	Omega Square	F Ratio	Signif. Level	N	Omega Square	F Ratio	Signif. Level
Family Ind.	115	.00	.40	.5292	115	.00	.27	.6015
Peer Ind.	115	5.28	7.41	.0075	115	.00	.89	.3466
Liberalism	113	.00	.65	.4229	113	.96	2.10**	.1501
Social Cons.	114	5.86	8.09	.0053	114	2.12	3.46	.0654
Cultural Soph.	115	5.06	7.13	.0087	115	3.88	5.65	.0192
Vocational	111	.90	2.01	.1588	111	.00	.78	.3783
Academic	111	2.91	4.32	.0400	111	.65	1.73	.1914
Collegiate	110	.63	1.69	.1959	110	7.03	9.32	.0029
Non-Conformist	111	.80	1.90	.1710	111	6.13	8.25	.0049
Anxiety	112	.00	.23	.6317	112	.00	.25	.6150
Intellectualism	112	2.28	3.61	.0601	112	.00	.43	.5139
Authoritarianism	112	1.24	2.40	.1241	112	1.61	2.84	.0949
Sociability	112	.00	.61	.4372	112	.00	.51	.4765
Career	104	.00	.33	.5674	104	.00	.43	.5148
Religion	102	.00	.03	.8741	102	.57	1.59	.2106
Ideas	107	.00	.13	.7205	107	.00	.84	.3606
Citizen	104	.00	.44	.5073	104	.00	.05	.8308
Arts	106	.52	1.55	.2160	106	.00	.10	.7476
National	103	5.96	7.52	.0072	103	.00	.03	.8729

TABLE 12. 1971 Freshman-Senior Longitudinal Data
Mean Correlations and Changes in Differences

Measure	Mean Correlations N	Pre/Post	Pre/Gain	Change in Differences N	Omega Square	F Ratio	Signif. Level
Family Ind.	644	+	-	644	-.39	.12	.7322
Peer Ind.	643	+	-	643	-1.18	.05	.8234
Liberalism	633	+	+	633	--.36	.01	.9391
Social Cons.	639	+	+	639	.99	.18	.6759
Cultural Soph.	645	+	+	645	2.62	.92	.3398
Vocational	639	+	-	639	-1.11	.01	.9389
Academic	639	+	-	639	-1.21	.03	.8812
Collegiate	637	+	+	637	3.39	1.22	.2697
Non-Conformist	639	+	+	639	2.61	2.03	.1547
Anxiety	633	+	-	633	-.20	.05	.8237
Intellectualism	633	+	-	633	-2.77	1.49	.2241
Authoritarianism	633	+	+	633	1.16	.13	.7228
Sociability	633	+	+	633	-.07	.02	.9102
Career	553	+	+	553	.00	.27	.6042
Religion	549	-	-	549	.00	.74	.3979
Ideas	560	-	-	560	-.46	2.67	.1036
Citizen	560	-	-	560	.00	.38	.5395
Arts	560	+	-	560	-1.34	.64	.4310
Rational	549	+	-	549	-1.12	.75	.3945

TABLE 13. 1971 Freshman-Senior Panel Data
Mean Correlations and Changes in Differences

Measure	Mean Correlations			Change in Differences			
	N	Pre/Post	Pre/Gain	N	Omega Square	F Ratio	Signif. Level
Family Ind.	115	+	-	115	.00	.07	.7886
Peer Ind.	115	+	-	115	-5.28	.14	.7074
Liberalism	113	+	+	113	.96	1.45	.2316
Social Cons.	114	+	-	114	-3.74	.61	.4360
Cultural Soph.	115	+	-	115	-1.18	.76	.3865
Vocational	111	+	-	111	-.90	.34	.5604
Academic	111	+	-	111	-2.26	.88	.3498
Collegiate	110	+	+	110	6.40	7.54	.0071
Non-Conformist	111	+	+	111	5.33	6.34	.0133
Anxiety	112	+	+	112	.00	.07	.7815
Intellectualism	112	+	-	112	-2.28	.20	.6525
Authoritarianism	112	+	-	112	.37	.81	.3694
Sociability	112	+	-	112	.00	.11	.7437
Career	104	+	+	104	.00	.29	.5918
Religion	102	-	-	102	.57	1.86	.1756
Ideas	107	+	+	107	.00	.74	.3904
Citizen	104	+	-	104	.00	.00	.9518
Arts	106	+	-	106	-.52	.00	.9691
National	103	-	-	103	-5.96	.45	.5034

TABLE 14. 1971 Freshman-Senior Longitudinal Data
Pre-test Means, Post-test Means, and Change in Means

Measure	Pre-test Means		Post-test Means		Change in Means		
	N	Means	N	Means	Gain	F Ratio	Signif. Level
Family Indep.							
RC	195	24.877	39	26.33	1.456	2.89	.1021
LSA	334	24.051	76	25.882	1.831	8.05	.0048
Peer [illegible]							
RC	194	26.485	39	26.385	-.100	.02	.8892
LSA	334	25.425	76	25.526	.101	.03	.8616
Liberalism							
RC	192	28.719	39	33.385	4.666	23.18	.0000
LSA	326	27.334	76	32.000	4.666	49.56	.0000
Social Cons.							
RC	193	29.788	39	31.282	1.494	3.70	.0558
LSA	331	28.659	76	29.737	1.078	3.38	.0666
Cultural Soph.							
RC	195	25.677	39	29.179	3.502	14.69	.0002
LSA	335	24.373	76	26.803	2.430	13.82	.0002
Vocational							
RC	194	2.696	40	3.025	.329	3.28	.0714
LSA	331	2.432	74	2.784	.352	7.22	.0075
Academic							
RC	194	1.907	39	2.128	.221	2.20	.1396
LSA	331	2.145	75	2.333	.188	2.98	.0849
Collegiate							
RC	194	2.284	39	2.769	.485	6.40	.0120
LSA	330	1.918	74	2.149	.231	2.96	.0862
Non-Conformist							
RC	194	3.083	39	2.026	-1.057	28.92	.0000
LSA	331	3.502	75	2.760	-.742	36.67	.0000
Anxiety							
RC	191	12.534	39	10.821	-1.713	3.06	.0816
LSA	327	11.765	76	10.342	-1.423	3.35	.0679
Intellectualism							
RC	191	17.168	39	15.103	-2.065	4.69	.0313
LSA	327	15.076	76	14.474	-.602	.72	.3979
Authoritarianism							
RC	191	10.356	39	5.308	-5.048	25.03	.0000
LSA	327	11.505	76	6.895	-4.610	41.65	.0000
Sociability							
RC	191	18.042	39	15.077	-2.965	7.13	.0081
LSA	327	18.706	76	15.947	-2.759	13.25	.0003

TABLE 11. Continued

Career							
RC	173	1.994	40	2.050	.056	.18	.6697
LSA	273	1.996	67	2.134	.138	2.13	.1457
Religion							
RC	170	2.918	41	2,927	.009	.00	.9590
LSA	271	2.893	67	3.090	.197	2.25	.1342
Ideas							
RC	175	2.194	41	2.512	.318	5.54	.0195
LSA	277	2.33[illegible]	67	2.358	.026	.05	.8173
Citizen							
RC	175	2.834	41	2.756	-.078	.28	.5955
LSA	278	2.773	66	2.803	.023	.08	.7734
Arts							
RC	175	2.549	41	2.[illegible]88	-.061	.14	.7057
LSA	277	2.787	67	2.56[illegible]	-.220	3.34	.0684
National							
RC	170	2.594	41	2.805	.211	1.57	.2117
LSA	271	2.816	67	2.851	.035	.09	.7689

TABLE 15. 1971 Freshman-Senior Panel Data
Pre-test Means, Post-test Means, and Change Means

Measure	Pre-test Means		Post-test Means		Change in Means		
	N	Means	N	Means	Gain	F Ratio	Signif. Level
Family Indep.							
RC	39	24.692	39	26.333	1.641	2.40	.1253
LSA	76	24.066	76	25.882	1.816	5.57	.0196
Peer Indep.							
RC	39	27.231	39	26.385	-.846	.90	.3444
LSA	76	24.882	76	25.526	.645	.70	.4048
Liberalism							
RC	39	27.795	39	33.385	5.590	22.97	.0000
LSA	74	26.946	74	31.986	5.040	36.30	.0000
Social Cons.							
RC	39	30.256	39	31.282	1.026	1.19	.2783
LSA	75	27.960	75	29.747	1.787	7.03	.0099
Cultural Soph.							
RC	39	26.487	39	29.179	2.692	4.68	.0337
LSA	76	23.895	76	26.803	2.908	14.33	.0002
Vocational							
RC	38	2.658	38	2.974	.316	1.81	.1828
LSA	73	2.384	73	2.781	.397	5.39	.0216
Academic							
RC	37	1.730	37	2.108	.378	3.48	.0663
LSA	74	2.081	74	2.338	.257	3.42	.0664
Collegiate							
RC	37	2.324	37	2.838	.514	4.23	.0435
LSA	73	2.027	73	2.164	.137	.00	.9970
Non-Conformist							
RC	37	3.270	37	2.027	-1.243	24.43	.0000
LSA	74	3.513	74	2.743	-.770	19.24	.0000
Anxiety							
RC	38	12.289	38	11.053	-1.236	1.02	.3162
LSA	74	11.730	74	10.459	-1.271	1.60	.2081
Intellectualism							
RC	38	17.132	38	15.000	-2.132	3.07	.0837
LSA	74	15.149	74	14.446	-.703	.92	.3397
Authoritarianism							
RC	38	10.474	38	5.447	-5.027	15.44	.0002
LSA	74	12.311	74	6.973	-5.338	40.02	.0000
Sociability							
RC	38	17.526	38	15.184	-2.342	2.78	.0996
LSA	74	18.486	74	15.919	-2.567	8.21	.0048

TABLE 15. Continued

Career							
RC	40	2.050	40	2.050	.000	.00	1.0000
LSA	64	2.125	64	2.156	.031	.06	.8037
Religion							
RC	38	2.842	38	2.842	.000	.00	1.0000
LSA	64	2.812	64	3.109	.297	3.48	.0643
Ideas							
RC	41	2.268	41	2.512	.244	2.11	.1505
LSA	66	2.212	66	2.364	.152	1.12	.2929
Citizen							
RC	41	2.780	41	2.756	-.024	.01	.9092
LSA	63	2.889	63	2.794	-.095	.50	.4768
Arts							
RC	40	2.550	40	2.525	-.025	.02	.8819
LSA	66	2.758	66	2.5[illegible]	-.182	1.57	.2172
National							
RC	39	2.385	39	2.872	.487	5.53	.0213
LSA	64	2.875	64	2.844	-.031	.04	.8341

TABLE 16. 1971 Freshman-Senior Longitudinal Data
Pre-test Variance, Post-test Variance, and Change in Variance

Measure	Pre-test Variance		Post-test Variance		Change in Variance		
	N	Variance	N	Variance	Gain	F Ratio	Signif. Level
Family Indep.							
RC	195	26.222	39	22.386	-3.836	.38	.5376
LSA	334	27.640	76	17.546	-10.0	5.70	.0169
Peer Indep.							
RC	194	16.966	39	15.138	-1.828	.20	.6552
LSA	334	20.023	76	24.306	4.283	1.19	.2750
Liberalism							
RC	192	32.685	39	19.190	-13.495	3.95	.0469
LSA	326	27.405	76	25.627	-1.778	.13	.7137
Social Cons.							
RC	193	19.824	39	18.524	-1.300	.07	.7894
LSA	331	22.262	76	16.703	-5.559	2.36	.1244
Cultural Soph.							
RC	195	26.508	39	30.362	3.854	.30	.5846
LSA	335	27.133	76	23.467	-3.666	.62	.4301
Vocational							
RC	194	1.083	40	1.153	.070	.06	.8004
LSA	331	1.004	74	1.186	.182	.85	.3555
Academic							
RC	194	.717	39	.746	.029	.03	.8721
LSA	331	.724	75	.738	.014	.12	.9140
Collegiate							
RC	194	1.220	39	1.077	-.143	.24	.6263
LSA	330	1.042	74	1.279	.237	1.30	.2535
Non-Conformist							
RC	194	1.216	39	1.447	.231	.49	.4824
LSA	331	.772	75	1.563	.791	17.22	.0000
Anxiety							
RC	191	32.461	39	24.204	-8.257	1.27	.2606
LSA	327	36.395	76	40.921	4.526	.43	.5134
Intellectualism							
RC	191	31.024	39	21.463	-9.561	1.96	.1615
LSA	327	34.825	76	15.879	-18.946	15.80	.0001
Authoritarianism							
RC	191	35.252	39	21.640	-13.612	3.35	.0674
LSA	327	34.110	76	19.962	-14.148	7.76	.0053
Sociability							
RC	191	42.282	39	28.231	-14.051	2.34	.1263
LSA	327	37.846	76	24.931	-12.915	4.84	.0279

TABLE 16. Continued

Career							
RC	173	.506	40	.767	.261	2.97	.0850
LSA	273	.460	67	.573	.113	1.34	.2479
Religion							
RC	170	.987	41	1.319	.332	1.43	.2318
LSA	271	.925	67	.901	-.024	.02	.8903
Ideas							
RC	175	.617	41	.556	-.061	.17	.6788
LSA	277	.679	67	.718	.039	.08	.7721
Citizen							
RC	175	.656	41	.989	.333	2.95	.0861
LSA	278	.559	66	.591	.032	.09	.7689
Arts							
RC	175	.916	41	.606	-.310	2.51	.1178
LSA	277	.813	67	.643	-.170	1.39	.2387
National							
RC	170	.965	41	.811	-.154	.46	.4955
LSA	271	.781	67	.735	-.046	.09	.7582

TABLE 17. 1971 Freshman-Senior Panel Data
Pre-test Variance, Post-test Variance, and Change in Variance

Measure	Pre-test Variance		Post-test Variance		Change in Variance		
	N	Variance	N	Variance	Gain	F Ratio	Signif. Level
Family Independence							
RC	39	21.324	39	22.386	1.062	.02	.8817
LSA	76	27.449	76	17.546	-9.903	3.70	.0544
Peer Independence							
RC	39	15.709	39	15.138	-.571	.01	.9098
LSA	76	20.959	76	24.306	3.347	.41	.5228
Liberalism							
RC	39	33.852	39	19.190	-14.662	2.98	.0842
LSA	74	25.641	74	26.150	.509	.01	.9332
Social Cons.							
RC	39	15.880	39	18.524	2.644	.22	.6374
LSA	75	17.147	75	16.921	-.226	.00	.9547
Cultural Soph.							
RC	39	30.046	39	30.362	.316	.00	.9745
LSA	76	21.375	76	23.457	2.082	.16	.6871
Vocational							
RC	38	.934	38	1.162	.228	.43	.5104
LSA	73	.934	73	1.201	.267	1.13	.2883
Academic							
RC	37	.758	37	.766	.008	.0	.9766
LSA	74	.678	74	.747	.069	.	.6799
Collegiate							
RC	37	1.281	37	1.028	-.253	.43	.5139
LSA	73	1.277	73	1.278	.001	.00	.9970
Non-Conformist							
RC	37	.869	37	1.472	.603	2.43	.1190
LSA	74	.719	74	1.563	.844	10.67	.0011
Anxiety							
RC	38	34.373	38	22.700	-11.673	1.56	.2117
LSA	74	33.871	74	40.827	6.956	.63	.4268
Intellectualism							
RC	38	34.550	38	21.622	-12.928	1.99	.1587
LSA	74	23.717	74	16.113	-7.604	2.70	.1009
Authoritarianism							
RC	38	40.743	38	21.443	-19.300	3.70	.0545
LSA	74	32.519	74	20.164	-12.355	4.10	.0428
Sociability							
RC	38	46.418	38	28.533	-17.885	2.14	.1435
LSA	74	33.842	74	25.555	-8.287	1.43	.2325

TABLE 17. Continued

Career							
RC	40	.408	40	.767	.359	3.78	.0519
LSA	64	.429	64	.578	.149	1.40	.2369
Religion							
RC	38	1.056	38	1.326	.270	.47	.4915
LSA	64	.694	64	.924	.230	1.27	.2591
Ideas							
RC	41	.601	41	..556	-.045	.06	.8063
LSA	66	.631	66	.727	.096	.32	.5697
Citizen							
RC	41	.876	41	.989	.113	.15	.7020
LSA	63	.520	63	.618	.098	.46	.4972
Arts							
RC	40	.561	40	.563	.002	.00	.9915
LSA	66	.771	66	.648	-.123	.49	.4853
National							
RC	39	.927	39	.746	-.181	.44	.5069
LSA	64	.683	64	.737	.054	.09	.7612

TABLE 18. 1971 Freshman-Senior Panel Data
Pre/Post and Pre/Gain Correlations for Individuals

Measure	Pre/Post Correlations				Pre/Gain Correlations			
	N	Corr.	T Stat.	Signif. Level	N	Corr.	T Stat.	Signif. Level
Family Ind.								
RC	39	.27	1.72	.0936	39	-.59	4.45	.0001
LSA	76	.54	5.50	.0000	76	-.65	7.27	.0000
Peer Ind.								
RC	39	.34	2.17	.0369	39	-.59	4.41	.0001
LSA	76	.52	5.27	.0000	76	-.43	4.10	.0001
Liberalism								
RC	39	.57	4.23	.0001	39	-.68	5.61	.0000
LSA	74	.44	4.17	.0001	74	-.52	5.19	.0000
Social Cons.								
RC	39	.47	3.25	.0025	39	-.46	3.14	.0034
LSA	75	.35	3.19	.0021	75	-.57	5.99	.0000
Cultural Soph.								
RC	39	.66	5.38	.0000	39	-.41	2.70	.0105
LSA	76	.7[illegible]	6.51	.0000	76	-.40	3.79	.0003
Vocational								
RC	38	.30	1.90	.0649	38	-.53	3.74	.0006
LSA	73	.17	1.47	.1451	73	-.58	6.07	.0000
Academic								
RC	37	.26	1.58	.1229	37	-.61	4.51	.0001
LSA	74	.13	1.15	.2544	74	-.64	7.01	.0000
Collegiate								
RC	37	.48	3.26	.0025	37	-.59	4.28	.0001
LSA	73	.26	2.24	.0280	73	-.61	6.47	.0000
Non-Conformist								
RC	37	.24	1.46	.1543	37	-.48	3.23	.0027
LSA	74	.41	3.82	.0003	74	-.28	2.49	.0150
[illegible]iety								
RC	38	.38	2.45	.0194	38	-.68	5.53	.0000
LSA	74	.67	7.71	.0000	74	-.31	2.73	.0079
Intellectualism								
RC	38	.77	7.34	.0000	38	-.61	4.64	.0000
LSA	74	.39	3.57	.0006	74	-.67	7.60	.0000
Authoritarianism								
RC	38	.59	4.35	.0001	38	-.70	5.87	.0000
LSA	74	.65	7.27	.0000	74	-.63	6.92	.0000
Sociability								
RC	38	.58	4.29	.0001	38	-.65	5.12	.0000
LSA	74	.56	5.73	.0000	74	-.55	6.05	.0000

TABLE 18. Continued

Career								
RC	40	.22	1.42	.1633	40	-.46	3.19	.0028
LSA	64	.22	1.74	.0877	64	-.55	5.21	.0000
Religion								
RC	38	.37	2.37	.0235	38	-.49	3.39	.0017
LSA	64	.24	1.98	.0521	64	-.54	5.06	.0000
Ideas								
RC	41	.23	1.49	.1444	41	-.64	5.19	.0000
LSA	66	.16	1.27	.2084	66	-.62	6.28	.0000
Citizen								
RC	41	.40	2.71	.0100	41	-.51	3.70	.0007
LSA	63	.41	3.55	.0007	63	-.48	4.31	.0001
Arts								
RC	40	.07	.41	.6853	40	-.68	5.76	.0000
LSA	66	.40	3.45	.0010	66	-.60	6.05	.0000
National								
RC	39	.09	.56	.5755	39	-.72	6.24	.0000
LSA	64	.26	2.15	.0358	64	-.59	5.71	.0000

TABLE 19. 1974 Freshman-Sophomore Longitudinal Data
Pre-test Differences and Post-test Differences

Measure	Pre-test Differences				Post-test Differences			
	N	Omega Square	F Ratio	Signif. Level	N	Omega Square	F Ratio	Signif. Level
Family Ind.	237	3.94	10.72	.0012	112	3.02	4.48	.0364
Peer Ind.	237	.00	.00	.9980	112	.00	.53	.4688
Liberalism	232	12.57	34.36	.0000	112	.38	1.42	.2344
Social Cons.	231	.15	1.36	.2456	112	2.18	3.49	.0643
Cultural Soph.	237	11.06	30.47	.0000	112	10.65	14.36	.0002
Vocational	229	10.78	28.66	.0000	109	9.73	12.75	.0005
Academic	227	.29	1.67	.1978	109	2.49	3.78	.0545
Collegiate	227	1.28	3.93	.0485	109	2.37	3.65	.0589
Non-Conformist	228	9.02	23.59	.0000	109	6.55	8.63	.0040
Anxiety	240	1.40	4.40	.0369	119	7.07	10.05	.0019
Intellectualism	240	5.48	14.91	.0001	119	1.21	2.46	.1196
Authoritarianism	240	11.36	31.77	.0000	119	6.56	9.36	.0028
Sociability	240	1.33	4.23	.0408	119	1.02	2.22	.1386

TABLE 20. 1974 Freshman-Sophomore Panel Data
Pre-test Differences and Post-test Differences

Measure	Pre-test Differences				Post-test Differences			
	N	Omega Square	F Ratio	Signif. Level	N	Omega Square	F Ratio	Signif. Level
Family Ind.	81	1.62	2.34	.1303	81	1.95	2.62	.1096
Peer Ind.	80	.00	.00	.9476	80	1.02	1.82	.1810
Liberalism	78	1.34	2.06	.1557	78	.00	.43	.5139
Social Cons.	75	1.58	2.21	.1417	75	5.24	5.14	.0263
Cultural Soph.	80	6.89	6.92	.0103	80	14.06	14.06	.0003
Vocational	76	4.64	4.70	.0334	76	13.15	12.51	.0007
Academic	75	7.12	6.75	.0113	75	9.34	8.73	.0042
Collegiate	75	.15	1.11	.2948	75	4.13	4.23	.0433
Non-Conformist	75	.00	.41	.5218	75	5.81	5.63	.0203
Anxiety	86	6.76	7.23	.0086	86	6.42	6.90	.0102
Intellectualism	86	1.13	1.98	.1628	86	1.09	1.94	.1668
Authoritarianism	86	5.39	5.90	.0173	86	8.23	8.72	.0041
Sociability	86	4.94	5.47	.0217	86	1.92	2.69	.1049

TABLE 21. 1974 Freshman-Sophomore Longitudinal Data
Mean Correlations and Changes in Differences

	Mean Correlations			Change in Differences			
Measure	N	Pre/Post	Pre/Gain	N	Omega Square	F Ratio	Signif. Level
Family Ind.	349	+	-	349	-.92	.03	.8813
Peer Ind.	349	-	-	349	.00	.34	.5606
Liberalism	344	+	-	344	-12.19	4.18	.0420
Social Cons.	343	-	-	343	2.03	4.42	.0362
Cultural Soph.	349	+	+	349	-.41	.06	.8076
Vocational	338	+	-	338	-1.05	.03	.8856
Academic	336	+	+	336	2.20	.92	.3398
Collegiate	336	+	+	336	1.09	.24	.6276
Non-Conformist	337	+	-	337	-2.47	.07	.7918
Anxiety	359	+	+	359	5.67	2.33	.1287
Intellectualism	359	+	-	359	-4.27	.71	.4078
Authoritarianism	359	+	-	359	-4.80	1.17	.2793
Sociability	359	+	-	359	-.31	.00	.9915

TABLE 22. 1974 Freshman-Sophomore Panel Data
Mean Correlations and Changes in Differences

Measure	Mean Correlations			Change in Differences			
	N	Pre/Post	Pre/Gain	N	Omega Square	F Ratio	Signif. Level
Family Ind.	81	+	+	81	.33	.53	.4686
Peer Ind.	80	-	-	80	1.02	3.23	.0763
Liberalism	73	+	-	78	-1.34	.16	.6881
Social Cons.	75	+	+	75	3.66	2.82	.0973
Cultural Soph.	80	+	+	80	7.17	6.91	.0103
Vocational	76	+	+	76	8.51	8.05	.0059
Academic	75	+	+	75	7.22	4.83	.0313
Collegiate	75	+	+	75	3.98	3.10	.0824
Non-Conformist	75	+	+	75	5.81	5.49	.0219
Anxiety	86	+	-	86	-.34	.91	.3421
Intellectualism	86	+	+	86	-.04	.17	.6812
Authoritarianism	86	+	+	86	2.84	2.81	.0977
Sociability	86	+	-	86	-3.02	.05	.8317

TABLE 23. 1974 Freshman-Sophomore Longitudinal Data
Pre-test Means, Post-test Means, and Change Means

Measure	Pre-test Means		Post-test Means		Change in Means		
	N	Means	N	Means	Gain	F Ratio	Signif. Level
Family Indep.							
RC	162	26.679	80	27.500	.821	1.51	.2207
LSA	75	24.360	32	25.375	1.015	.86	.3567
Peer Indep.							
RC	161	25.801	80	25.125	-.676	1.77	.1847
LSA	76	25.803	32	24.594	-1.209	2.43	.1220
Liberalism							
RC	159	33.403	80	33.787	.384	.37	.5436
LSA	73	29.685	32	32.500	2.815	7.29	.0081
Social Cons.							
RC	155	31.477	80	31.162	-.315	.30	.5818
LSA	76	30.763	32	32.688	1.925	4.29	.0409
Cultural Soph.							
RC	161	26.410	80	27.825	1.415	4.75	.0302
LSA	76	22.961	32	24.094	1.133	1.71	.1939
Vocational							
RC	156	3.180	77	3.195	.015	.01	.9076
LSA	73	2.411	32	2.469	.058	.06	.8055
Academic							
RC	155	2.045	77	2.117	.072	.35	.5532
LSA	72	2.208	32	2.500	.292	1.96	.1641
Collegiate							
RC	155	2.438	77	2.649	.211	1.99	.1596
LSA	72	2.139	32	2.219	.080	.13	.7206
Non-Conformist							
RC	156	2.359	77	2.039	-.320	3.54	.0613
LSA	72	3.181	32	2.781	-.400	2.81	.0966
Anxiety							
RC	164	14.037	82	14.305	.268	.16	.6894
LSA	76	12.526	37	10.838	-1.688	1.98	.1620
Intellectualism							
RC	164	17.628	82	17.024	-.604	.78	.3792
LSA	76	14.895	37	15.351	.456	.17	.6782
Authoritarianism							
RC	164	5.994	82	4.720	-1.274	4.88	.0280
LSA	76	9.790	37	7.297	-2.493	5.22	.0243
Sociability							
RC	164	15.409	82	14.951	-.458	.34	.5625
LSA	76	17.118	37	16.595	-.523	.20	.6591

TABLE 24. 1974 Freshman-Sophomore Panel Data
Pre-test Means, Post-test Means, and Change in Means

Measure	Pre-test Means		Post-test Means		Change in Means		
	N	Means	N	Means	Gain	F Ratio	Signif. Level
Family Indep.							
RC	55	25.964	55	26.600	.636	.44	.5105
LSA	26	24.077	26	24.692	.615	.19	.6657
Peer Indep.							
RC	54	25.944	54	25.556	-.388	.30	.5860
LSA	26	26.000	26	24.346	-1.654	2.87	.0966
Liberalism							
RC	52	32.904	52	33.346	.442	.20	.6579
LSA	26	31.423	26	32.462	1.039	.60	.4427
Social Cons.							
RC	49	31.612	49	31.224	-.388	.19	.6650
LSA	26	33.154	26	33.385	.231	.06	.8089
Cultural Soph.							
RC	54	26.352	54	27.685	1.333	1.97	.1617
LSA	26	23.577	26	23.654	.077	.01	.9331
Vocational							
RC	51	2.980	51	3.098	.118	.38	.5403
LSA	25	2.400	25	2.240	-.160	.22	.6381
Academic							
RC	50	1.840	50	1.980	.140	.65	.4215
LSA	25	2.440	25	2.640	.200	.46	.4998
Collegiate							
RC	50	2.440	50	2.700	.260	1.37	.2445
LSA	25	2.160	25	2.160	.000	.00	1.0000
Non-Conformist							
RC	50	2.700	50	2.240	-.460	3.61	.0604
LSA	25	2.880	25	2.960	.080	.06	.8069
Anxiety							
RC	57	14.088	57	13.789	-.298	.09	.7546
LSA	29	10.655	29	10.379	-.276	.02	.8827
Intellectualism							
RC	57	17.614	57	17.000	-.614	.32	.5749
LSA	29	15.862	29	15.172	-.690	.03	.8723
Authoritarianism							
RC	57	6.579	57	5.000	-1.579	4.07	.0461
LSA	29	9.345	29	7.862	-1.483	.74	.3927
Sociability							
RC	57	15.877	57	14.649	-1.228	1.31	.2552
LSA	29	18.931	29	16.759	-2.172	2.29	.1354

TABLE 25. 1974 Freshman-Sophomore Longitudinal Data
Pre-test Variance, Post-test Variance, and Change in Variance

Measure	Pre-test Variance		Post-test Variance		Change in Variance		
	N	Variance	N	Variance	Gain	F Ratio	Signif. Level
Family Ind.							
RC	162	24.878	80	22.025	-2.853	.39	.5347
LSA	75	27.558	32	25.532	-2.026	.06	.8030
Peer Ind.							
RC	161	14.110	80	13.199	-.901	.12	.7331
LSA	76	15.147	32	9.668	-5.479	2.04	.1530
Liberalism							
RC	159	18.204	80	27.562	9.358	4.69	.0303
LSA	73	24.330	32	23.806	-.524	.00	.9434
Social Cons.							
RC	155	17.861	80	15.910	-1.951	.34	.5579
LSA	76	21.943	32	13.448	-8.495	2.41	.1204
Cultural Soph.							
RC	161	20.943	80	25.716	4.773	1.13	.2871
LSA	76	18.492	32	13.120	-5.372	1.21	.2707
Vocational							
RC	156	.948	77	.791	-.157	.82	.3647
LSA	73	1.190	32	1.289	.099	.07	.7918
Academic							
RC	155	.745	77	.763	.018	.01	.9054
LSA	72	.872	32	1.161	.289	.91	.3402
Collegiate							
RC	155	1.118	77	1.204	.086	.14	.7068
LSA	72	1.135	32	1.015	-.120	.13	.7168
Non-Conformist							
RC	156	1.522	77	1.433	-.089	.09	.7617
LSA	72	1.164	32	1.467	.303	.59	.4441
Anxiety							
RC	164	25.054	82	23.597	-1.457	.10	.7568
LSA	76	30.919	37	45.973	15.054	1.97	.1602
Intellectualism							
RC	164	24.714	82	27.580	2.866	.33	.5668
LSA	76	28.869	37	32.290	3.421	.15	.6958
Authoritarianism							
RC	164	20.595	82	13.315	-7.280	4.85	.0277
LSA	76	29.982	37	28.881	-1.101	.02	.8970
Sociability							
RC	164	35.556	82	30.862	-4.694	.53	.4662
LSA	76	36.666	37	31.192	-5.474	.31	.5787

TABLE 26. 1974 Freshman-Sophomore Panel Data
Pre-test Variance, Post-test Variance, and Change in Variance

Measure	Pre-test Variance		Post-test Variance		Change in Variance		
	N	Variance	N	Variance	Gain	F Ratio	Signif. Level
Family Ind.							
RC	55	27.591	55	23.504	-4.087	.34	.5578
LSA	26	25.354	26	26.782	1.428	.02	.8921
Peer Ind.							
RC	54	11.978	54	15.384	3.406	.82	.3652
LSA	26	13.440	26	11.355	-2.085	.17	.6767
Liberalism							
RC	52	16.873	52	34.701	17.828	6.43	.0112
LSA	26	21.774	26	25.058	3.284	.12	.7281
Social Cons.							
RC	49	22.117	49	16.928	-5.189	.85	.3575
LSA	26	10.935	26	12.486	1.551	.11	.7428
Cultural Soph.							
RC	54	23.629	54	24.710	1.081	.03	.8712
LSA	26	10.814	26	10.795	-.019	.00	.9966
Vocational							
RC	51	1.020	51	.850	-.170	.41	.5230
LSA	25	1.583	25	1.273	-.310	.28	.5977
Academic							
RC	50	.790	50	.714	-.076	.13	.7236
LSA	25	1.090	25	1.073	-.017	.00	.9702
Collegiate							
RC	50	1.272	50	1.194	-.078	.05	.8257
LSA	25	.973	25	1.057	.084	.04	.8422
Non-Conformist							
RC	50	1.316	50	1.615	.299	.51	.4772
LSA	25	1.277	25	1.373	.096	.03	.8596
Anxiety							
RC	57	31.346	57	24.741	-6.805	.82	.3660
LSA	29	30.877	29	47.672	16.795	.94	.3313
Intellectualism							
RC	57	34.027	57	33.893	-.134	.00	.9883
LSA	29	21.195	29	31.219	10.024	1.29	.2579
Authoritarianism							
RC	57	20.105	57	14.821	-5.284	1.29	.2570
LSA	29	34.591	29	24.552	-10.039	.26	.6089
Sociability							
RC	57	34.431	57	31.303	-3.128	.13	.7228
LSA	29	29.424	29	32.904	3.480	.03	.8681

TABLE 27. 1974 Freshman-Sophomore Panel Data
Pre/Post and Pre/Gain Correlations for Individuals

Measure	Pre/Post Correlations				Pre/Gain Correlations			
	N	Corr.	T Stat.	Signif. Level	N	Corr.	T Stat.	Signif. Level
Family Ind.								
RC	55	.68	6.71	.0000	55	-.48	4.02	.0002
LSA	26	.82	6.92	.0000	26	-.26	1.33	.1960
Peer Ind.								
RC	54	.67	6.55	.0000	54	-.27	2.05	.0458
LSA	26	.57	3.40	.0024	26	-.53	3.09	.0050
Liberalism								
RC	52	.63	5.79	.0000	52	-.08	.58	.5622
LSA	26	.77	5.86	.0000	26	-.25	1.26	.2195
Social Cons.								
RC	49	.64	5.66	.0000	49	-.55	4.50	.0000
LSA	26	.58	3.46	.0020	26	-.40	2.15	.0415
Cultural Soph.								
RC	54	.81	9.92	.0000	54	-.28	2.07	.0432
LSA	26	.80	6.63	.0000	26	-.31	1.62	.1180
Vocational								
RC	51	.17	1.24	.2222	51	-.68	6.55	.0000
LSA	25	.63	3.93	.0007	25	-.53	2.98	.0066
Academic								
RC	50	.27	1.92	.0605	50	-.63	5.64	.0000
LSA	25	.31	1.55	.1360	25	-.59	3.53	.0018
Collegiate								
RC	50	.26	1.85	.0700	50	-.63	5.55	.0000
LSA	25	.71	4.88	.0001	25	-.33	1.69	.1052
Non-Conformist								
RC	50	.43	3.28	.0019	50	-.46	3.64	.0007
LSA	25	.66	4.18	.0004	25	-.38	1.95	.0630
Anxiety								
RC	57	.73	7.82	.0000	57	-.51	4.35	.0001
LSA	29	.73	5.56	.0000	29	-.11	.56	.5768
Intellectualism								
RC	57	.82	10.49	.0000	57	-.31	2.38	.0207
LSA	29	.84	8.03	.0000	29	.03	.15	.8824
Authoritarianism								
RC	57	.55	4.94	.0000	57	-.59	5.44	.0000
LSA	29	.90	10.50	.0000	29	-.55	3.41	.0021
Sociability								
RC	57	.56	4.96	.0000	57	-.51	4.40	.0001
LSA	29	.78	6.48	.0000	29	-.26	1.38	.1802

TABLE 28. 1966-67 Freshman-Senior Longitudinal Data
Pre-test Differences and Post-test Differences

Measure	Pre-test Differences				Post-test Differences			
	N	Omega Square	F Ratio	Signif. Level	N	Omega Square	F Ratio	Signif. Level
Thinking Intr.	3565	6.85	38.48	.0000	1252	9.11	18.92	.0000
Theor. Orient.	3551	10.59	61.05	.0000	1243	13.63	29.02	.0000
Estheticism	3571	10.07	58.15	.0000	1254	15.96	35.02	.0000
Complexity	3565	4.30	23.90	.0000	1249	9.56	19.87	.0000
Autonomy	3546	4.06	22.41	.0000	1243	7.99	16.43	.0000
Religious Orient.	3548	3.16	17.55	.0000	1248	9.18	19.01	.0000
Impulse Exp.	3548	4.08	22.58	.0000	1250	5.59	11.58	.0000
Theoretical	3737	6.40	37.51	.0000	1307	10.45	22.78	.0000
Economic	3710	6.79	39.59	.0000	1306	11.38	24.96	.0000
Aesthetic	3724	7.34	43.14	.0000	1305	16.67	38.29	.0000
Social	3765	5.54	32.56	.0000	1306	8.48	18.29	.0000
Political	3700	6.02	34.86	.0000	1306	10.98	24.01	.0000
Religious	3716	3.25	18.84	.0000	1306	6.34	13.63	.0000
Career	3795	11.85	73.91	.0000	1390	5.96	13.58	.0000
Religion	3790	1.89	11.43	.0000	1388	6.08	13.79	.0000
Marriage	3791	2.58	15.34	.0000	1391	3.05	7.24	.0000
Family	3792	3.46	20.42	.0000	1391	2.41	5.92	.0000
Ideas	3793	4.98	29.42	.0000	1392	6.39	14.58	.0000
Friendships	3795	.76	5.16	.0000	1393	2.75	6.63	.0000
Citizen	3796	1.90	11.52	.0000	1389	1.50	4.03	.0000
Arts	3789	6.94	41.37	.0000	1388	10.30	23.77	.0000
National	3785	4.92	28.99	.0000	1389	5.78	13.18	.0000

TABLE 29. 1966-67 Freshman-Senior Panel Data
Pre-test Differences and Post-test Differences

Measure	Pre-test Differences				Post-test Differences			
	N	Omega Square	F Ratio	Signif. Level	N	Omega Square	F Ratio	Signif. Level
Thinking Intr.	1181	7.87	15.42	.0000	1181	8.83	17.35	.0000
Theor. Orient.	1168	10.53	20.64	.0000	1168	13.38	26.78	.0000
Estheticism	1184	9.89	19.56	.0000	1184	15.97	33.14	.0000
Complexity	1177	4.63	9.16	.0000	1177	9.65	18.95	.0000
Autonomy	1168	6.44	12.49	.0000	1168	8.37	16.24	.0000
Religious Orient.	1171	6.08	11.83	.0000	1171	9.38	18.31	.0000
Impulse Exp.	1174	4.99	9.80	.0000	1174	5.67	11.08	.0000
Theoretical	1148	7.24	13.81	.0000	1148	9.96	19.14	.0000
Economic	1148	4.12	8.04	.0000	1148	8.85	16.92	.0000
Aesthetic	1145	5.87	11.21	.0000	1145	15.50	31.02	.0000
Social	1159	5.43	10.52	.0000	1159	7.83	15.06	.0000
Political	1140	7.17	13.58	.0000	1140	10.90	20.91	.0000
Religious	1150	3.98	7.80	.0000	1150	6.22	11.90	.0000
Career	1238	10.15	20.99	.0000	1238	6.26	12.80	.0000
Religion	1235	2.52	5.56	.0000	1235	5.98	12.21	.0000
Marriage	1243	2.79	6.09	.0000	1243	3.55	7.53	.0000
Family	1240	3.85	8.09	.0000	1240	2.53	5.60	.0000
Ideas	1241	3.85	8.11	.0000	1241	5.33	10.98	.0000
Friendships	1244	.81	2.45	.0171	1244	2.42	5.41	.0000
Citizen	1241	1.49	3.67	.0006	1241	1.11	3.00	.0040
Arts	1236	5.79	11.86	.0000	1236	10.26	21.18	.0000
National	1237	3.84	8.06	.0000	1237	5.55	11.39	.0000

TABLE 30. 1966-67 Freshman-Senior Longitudinal Data
Mean Correlations and Changes in Differences

Measure	Mean Correlations			Change in Differences			
	N	Pre/Post	Pre/Gain	N	Omega Square	F Ratio	Signif. Level
Thinking Intr.	4817	.91	-.02	4817	2.26	1.55	.1448
Theor. Orient.	4794	.93	.53	4794	3.04	2.28	.0256
Estheticism	4825	.98	.72	4825	5.89	1.86	.0711
Complexity	4814	.96	.59	4814	5.26	1.39	.2037
Autonomy	4789	.91	-.25	4789	3.93	.96	.4588
Religious Orient.	4796	.98	.89	4796	6.02	1.15	.3265
Impulse Exp.	4798	.91	.11	4798	1.51	1.31	.2373
Theoretical	5044	.86	.14	5044	4.05	2.23	.0287
Economic	5016	.95	.53	5016	4.59	2.52	.0130
Aesthetic	5029	.98	.85	5029	9.33	3.63	.0007
Social	5071	.86	.17	5071	2.94	2.31	.0232
Political	5006	.96	.38	5006	4.96	.70	.6697
Religious	5022	.94	.32	5022	3.09	.76	.6197
Career	5185	.92	-.56	5185	-5.89	1.76	.0886
Religion	5178	.96	.77	5178	4.19	1.22	.2861
Marriage	5182	.89	-.14	5182	.47	.71	.6613
Family	5183	.92	-.59	5183	-1.05	.68	.6863
Ideas	5185	.98	.49	5185	1.41	.30	.9056
Friendships	5188	.52	-.01	5188	1.99	2.18	.0326
Citizen	5185	.63	-.43	5185	-.40	1.26	.2644
Arts	5177	.94	-.05	5177	3.36	1.80	.0816
National	5174	.90	-.30	5174	.86	.81	.5791

TABLE 31. 1966-67 Freshman-Senior Panel Data
Mean Correlations and Changes in Differences

Measure	Mean Correlations			Change in Differences			
	N	Pre/Post	Pre/Gain	N	Omega Square	F Ratio	Signif. Level
Thinking Intr.	1181	.98	.35	1181	.96	6.59	.0000
Theor. Orient.	1168	.93	.41	1168	2.85	11.11	.0000
Estheticism	1184	.98	.81	1184	6.08	14.24	.0000
Complexity	1177	.93	.65	1177	5.02	11.75	.0000
Autonomy	1168	.87	-.35	1168	1.93	7.70	.0000
Religious Orient.	1171	.98	.72	1171	3.30	7.13	.0000
Impulse Exp.	1174	.97	.49	1174	.68	3.86	.0004
Theoretical	1148	.91	-.05	1148	2.72	11.84	.0000
Economic	1148	.92	.61	1148	11.73	11.07	.0000
Aesthetic	1145	.97	.76	1145	9.63	21.04	.0000
Social	1159	.56	-.30	1159	2.40	10.34	.0000
Political	1140	.88	-.02	1140	3.73	12.20	.0000
Religious	1150	.92	.12	1150	2.24	6.28	.0000
Career	1238	.89	-.65	1238	-3.89	4.20	.0001
Religion	1235	.95	.61	1235	3.46	7.33	.0000
Marriage	1243	.84	-.3?	1243	.76	4.71	.0000
Family	1240	.82	-.58	1240	-1.32	3.01	.0039
Ideas	1241	.95	.14	1241	1.48	6.75	.0000
Friendships	1244	.48	-.25	1244	1.61	4.55	.0000
Citizen	1241	.30	-.43	1241	-.38	2.05	.0465
Arts	1236	.97	.72	1236	4.47	12.52	.0000
National	1237	.91	.28	1237	1.71	6.69	.0000

TABLE 32. 1966-67 Freshman-Senior Longitudinal Data
Pre-test Means, Post-test Means, and Change in Means

Measure	Pre-test Means		Post-test Means		Change in Means		
	N	Means	N	Means	Gain	F Ratio	Signif. Level
Thinking Intr.							
Preprof. (1)	795	16.318	88	18.523	2.205	20.00	.0000
Preprof. (2)	372	15.487	94	15.798	.311	.33	.5635
Humanities	609	18.342	275	19.495	1.153	15.15	.0001
Social Sci.	593	17.916	384	19.188	1.272	21.26	.0000
Basic Sci.	766	15.711	197	16.701	.990	7.06	.0080
Education	223	16.072	136	16.426	.354	.51	.4776
Arts	61	18.721	26	18.654	-.067	.01	.9403
Bus. Adm.	146	14.404	52	15.077	.673	.93	.3356
Theor. Orient.							
Preprof. (1)	792	17.896	88	19.182	1.286	6.65	.0101
Preprof. (2)	370	15.508	93	14.957	-.551	1.19	.2752
Humanities	608	15.842	274	16.266	.424	1.86	.1727
Social Sci.	591	16.364	382	18.086	1.722	36.71	.0000
Basic Sci.	762	19.185	194	20.675	1.490	20.69	.0000
Education	221	14.719	134	15.284	.565	1.42	.2344
Arts	61	16.623	26	16.192	-.431	.22	.6435
Bus. Adm.	146	15.795	52	16.346	.551	.67	.4134
Estheticism							
Preprof. (1)	797	11.624	89	12.449	.825	2.39	.1225
Preprof. (2)	372	12.285	95	12.568	.283	.31	.5796
Humanities	611	14.854	276	16.982	2.128	50.45	.0000
Social Sci.	593	13.639	383	14.206	.567	3.34	.0678
Basic Sci.	767	11.357	197	12.041	.684	3.53	.0605
Education	223	12.794	136	14.235	1.441	9.11	.0027
Arts	61	16.918	26	18.231	1.313	1.84	.1782
Bus. Adm.	147	9.674	52	9.173	-.501	.53	.4678
Complexity							
Preprof. (1)	795	13.525	89	13.899	.374	.56	.4560
Preprof. (2)	372	11.820	93	11.108	-.712	1.90	.1683
Humanities	610	14.366	274	15.631	1.265	11.79	.0006
Social Sci.	592	14.465	383	16.084	1.619	24.57	.0000
Basic Sci.	766	13.832	197	13.893	.061	.03	.8679
Education	223	11.789	135	12.037	.248	.28	.5989
Arts	61	16.656	26	17.346	.690	.37	.5434
Bus. Adm.	146	12.534	52	12.865	.331	.23	.6321
Autonomy							
Preprof. (1)	790	20.895	89	26.337	5.442	74.02	.0000
Preprof. (2)	370	19.308	93	24.280	4.972	51.94	.0000
Humanities	609	22.412	274	28.007	5.595	193.79	.0000
Social Sci.	590	22.486	381	28.598	6.112	291.79	.0000
Basic Sci.	760	21.405	195	26.421	5.016	118.89	.0000
Education	221	18.719	134	24.903	6.184	106.52	.0000
Arts	61	23.574	25	27.720	4.146	10.44	.0018
Bus. Adm.	145	20.021	52	24.538	4.517	32.04	.0000

TABLE 32. Continued

Religious Orient.							
Preprof. (1)	792	12.992	88	15.727	2.735	18.37	.0000
Preprof. (2)	370	10.722	93	12.215	1.493	6.74	.0097
Humanities	609	13.736	275	17.265	3.529	87.22	.0000
Social Sci.	588	14.401	381	18.333	3.932	140.41	.0000
Basic Sci.	762	13.192	197	16.741	3.549	60.66	.0000
Education	221	12.195	136	15.007	2.812	23.48	.0000
Arts	61	14.230	26	17.346	3.116	6.53	.0124
Bus. Adm.	145	12.828	52	16.019	3.191	15.01	.0001
Impulse Exp.							
Preprof. (1)	790	15.976	89	16.708	.732	1.58	.2084
Preprof. (2)	370	12.730	94	13.926	1.196	3.56	.0599
Humanities	609	14.594	274	17.456	2.862	52.34	.0000
Social Sci.	590	15.127	385	18.034	2.907	73.43	.0000
Basic Sci.	761	14.464	196	15.704	1.240	9.21	.0025
Education	222	13.077	134	14.791	1.714	8.29	.0042
Arts	61	17.574	26	19.615	2.041	3.28	.0735
Bus. Adm.	145	15.966	52	17.596	1.630	4.20	.0417
Theoretical							
Preprof. (1)	851	3.109	111	2.829	-.280	3.08	.0798
Preprof. (2)	392	3.793	95	3.716	-.077	.22	.6374
Humanities	629	3.469	281	3.327	-.142	1.85	.1745
Social Sci.	616	3.487	390	3.046	-.441	20.48	.0000
Basic Sci.	800	2.660	203	2.128	-.532	20.82	.0000
Education	226	3.774	136	3.713	-.061	.16	.6873
Arts	65	3.600	31	3.484	-.116	.13	.7184
Bus. Adm.	158	3.918	60	3.083	-.835	14.52	.0002
Economic							
Preprof. (1)	846	3.592	111	2.883	-.709	21.03	.0000
Preprof. (2)	390	3.962	95	3.737	-.225	2.09	.1488
Humanities	623	4.398	281	4.249	-.149	2.50	.1144
Social Sci.	611	4.128	389	3.627	-.501	25.93	.0000
Basic Sci.	793	3.820	203	3.749	-.071	.34	.5578
Education	225	3.969	136	3.677	-.292	4.35	.0378
Arts	64	4.109	31	4.258	.149	.27	.6058
Bus. Adm.	158	2.500	60	1.933	-.567	7.59	.0064
Aesthetic							
Preprof. (1)	845	4.059	111	4.090	.031	.04	.8412
Preprof. (2)	394	3.642	95	3.390	-.252	2.69	.1013
Humanities	629	2.963	281	2.480	-.483	23.32	.0000
Social Sci.	612	3.482	389	3.450	-.032	.12	.7309
Basic Sci.	794	3.848	202	3.465	-.383	10.94	.0010
Education	231	3.416	136	2.949	-.467	10.54	.0013
Arts	64	2.531	31	1.871	-.660	5.31	.0234
Bus. Adm.	155	4.348	60	4.717	.369	2.88	.0910

TABLE 32. Continued

Social							
Preprof. (1)	852	2.132	111	2.153	.021	.03	.8668
Preprof. (2)	400	1.525	95	1.547	.022	.05	.8298
Humanities	634	1.730	281	1.594	-.136	3.28	.0705
Social Sci.	620	1.807	389	1.884	.077	1.06	.3041
Basic Sci.	805	2.321	202	2.183	-.138	1.65	.1988
Education	232	1.422	137	1.212	-.210	7.65	.0060
Arts	64	2.172	31	1.936	-.236	.82	.3686
Bus. Adm.	158	2.114	60	2.550	.436	5.86	.0163
Political							
Preprof. (1)	842	4.347	111	4.378	.031	.04	.8338
Preprof. (2)	387	5.240	95	5.095	-.145	1.39	.2392
Humanities	619	4.832	281	4.658	-.174	3.89	.0488
Social Sci.	614	4.134	389	3.879	-.255	5.85	.0158
Basic Sci.	792	4.645	203	4.714	.069	.44	.5090
Education	225	5.133	136	5.103	-.030	.06	.8029
Arts	64	4.750	31	4.774	.024	.01	.9311
Bus. Adm.	157	4.096	60	3.783	-.313	1.74	.1889
Religious							
Preprof. (1)	845	3.710	111	4.649	.939	27.75	.0000
Preprof. (2)	395	2.765	95	3.516	.751	18.85	.0000
Humanities	620	3.497	281	4.669	1.172	103.54	.0000
Social Sci.	611	3.822	389	5.100	1.278	158.38	.0000
Basic Sci.	798	3.620	203	4.704	1.084	64.19	.0000
Education	229	3.188	136	4.331	1.143	45.42	.0000
Arts	63	3.825	31	4.677	.852	4.92	.0290
Bus. Adm.	155	3.955	60	4.933	.978	15.57	.0001
Career							
Preprof. (1)	858	3.292	123	3.187	-.105	2.93	.0872
Preprof. (2)	399	2.684	100	2.710	.026	.12	.7271
Humanities	638	2.683	299	2.806	.123	5.35	.0209
Social Sci.	632	2.878	411	3.068	.190	16.14	.0001
Basic Sci.	808	3.092	211	3.057	-.035	.45	.5039
Education	236	2.500	145	2.621	.121	2.97	.0858
Arts	67	2.866	40	3.075	.209	1.73	.1911
Bus. Adm.	157	3.140	61	3.229	.089	.86	.3536
Religion							
Preprof. (1)	855	2.368	122	2.016	-.352	15.91	.0001
Preprof. (2)	400	2.715	100	2.540	-.175	3.48	.0626
Humanities	637	2.303	299	1.773	-.530	66.09	.0000
Social Sci.	632	2.240	410	1.685	-.555	84.53	.0000
Basic Sci.	807	2.333	211	1.853	-.480	41.98	.0000
Education	234	2.500	145	2.090	-.410	23.85	.0000
Arts	67	2.254	40	1.875	-.379	4.43	.0376
Bus. Adm.	158	2.297	61	1.934	-.363	8.46	.0040

TABLE 32. Continued

Marriage							
Preprof. (1)	854	3.501	123	3.602	.101	2.44	.1184
Preprof. (2)	400	3.770	100	3.840	.070	1.55	.2143
Humanities	638	3.646	300	3.650	.004	.01	.9265
Social Sci.	632	3.533	412	3.536	.003	.00	.9453
Basic Sci.	807	3.486	211	3.545	.059	1.21	.2718
Education	235	3.847	145	3.876	.029	.51	.4762
Arts	67	3.537	39	3.641	.104	.42	.5183
Bus. Adm.	158	3.601	61	3.508	-.093	.99	.3196
Family							
Preprof. (1)	855	3.346	122	2.443	-.903	162.31	.0000
Preprof. (2)	401	3.673	99	2.788	-.885	159.18	.0000
Humanities	639	3.471	301	2.482	-.989	328.20	.0000
Social Sci.	631	3.395	412	2.490	-.905	308.56	.0000
Basic Sci.	807	3.305	211	2.365	-.940	251.93	.0000
Education	235	3.817	145	2.759	-1.059	322.65	.0000
Arts	67	3.343	40	2.525	-.818	24.77	.0000
Bus. Adm.	157	3.459	61	2.525	-.934	93.86	.0000
Ideas							
Preprof. (1)	855	2.727	122	2.647	-.080	1.29	.2571
Preprof. (2)	399	2.529	100	2.540	.011	.02	.8843
Humanities	641	3.022	300	3.057	.035	.49	.4845
Social Sci.	632	2.997	413	2.985	-.012	.06	.8040
Basic Sci.	807	2.815	211	2.820	.005	.01	.9354
Education	235	2.711	145	2.641	-.070	.96	.3283
Arts	67	2.955	40	3.000	.045	.10	.7481
Bus. Adm.	157	2.516	61	2.475	-.041	.15	.6970
Friendships							
Preprof. (1)	857	2.813	123	2.707	-.106	2.69	.1014
Preprof. (2)	399	2.787	100	2.910	.123	3.32	.0690
Humanities	639	2.879	300	3.033	.154	11.28	.0008
Social Sci.	632	2.940	413	3.031	.091	4.77	.0292
Basic Sci.	810	2.765	211	2.834	.069	1.74	.1875
Education	235	2.898	145	3.110	.212	9.23	.0025
Arts	67	2.940	40	2.950	.010	.01	.9414
Bus. Adm.	156	2.917	61	2.820	-.097	.95	.3297
Citizen							
Preprof. (1)	855	2.393	123	2.203	-.190	7.74	.0055
Preprof. (2)	400	2.275	100	2.340	.065	.89	.3473
Humanities	639	2.260	300	2.277	.017	.11	.7374
Social Sci.	631	2.520	411	2.467	-.053	.61	.4356
Basic Sci.	811	2.234	210	2.233	-.001	.00	.9864
Education	235	2.404	144	2.396	-.008	.01	.9066
Arts	67	2.164	40	2.200	.036	.07	.7947
Bus. Adm.	158	2.335	61	2.475	.140	1.69	.1944

TABLE 32. Continued

Arts							
Preprof.(1)	856	2.069	122	2.156	.087	1.33	.2493
Preprof.(2)	398	2.030	100	2.250	.220	7.90	.0051
Humanities	638	2.563	298	2.842	.279	22.73	.0000
Social Sci.	632	2.326	411	2.462	.136	7.40	.0066
Basic Sci.	806	2.103	211	2.308	.205	10.79	.0011
Education	235	2.174	145	2.558	.384	25.57	.0000
Arts	67	2.955	40	3.000	.045	.08	.7826
Bus. Adm.	157	1.866	61	1.885	.019	.03	.8714
National							
Preprof.(1)	855	2.168	122	1.959	-.209	6.75	.0095
Preprof.(2)	399	1.937	100	1.790	-.147	3.51	.0617
Humanities	636	2.211	300	2.150	-.061	1.00	.3171
Social Sci.	629	2.539	411	2.375	-.164	7.70	.0056
Basic Sci.	807	2.026	211	1.919	-.107	3.10	.0784
Education	236	1.958	144	1.819	-.139	3.42	.0653
Arts	67	2.075	40	2.050	-.025	.02	.8772
Bus. Adm.	156	2.000	61	2.066	.066	.29	.5907

TABLE 33. 1966-67 Freshman-Senior Panel Data
Pre-test Means, Post-test Means, and Change in Means

Measure	Pre-test Means N	Pre-test Means Means	Post-test Means N	Post-test Means Means	Change in Means Gain	Change in Means F Ratio	Change in Means Signif. Level
Thinking Intr.							
Preprof. (1)	80	16.387	80	18.525	2.138	9.03	.0031
Preprof. (2)	88	14.750	88	15.898	1.148	2.39	.1241
Humanities	263	17.730	263	19.513	1.783	25.17	.0000
Social Science	362	16.956	362	19.246	2.290	54.31	.0000
Basic Science	186	15.210	186	16.758	1.548	10.64	.0012
Education	129	15.171	129	16.473	1.302	6.18	.0136
Arts	26	17.115	26	18.654	1.539	1.77	.1898
Bus. Adm.	47	13.234	47	15.085	1.851	4.20	.0432
Theor. Orient.							
Preprof. (1)	80	18.375	80	19.387	1.012	2.29	.1325
Preprof. (2)	87	15.460	87	15.069	-.391	.38	.5375
Humanities	262	16.027	262	16.267	.240	.40	.5268
Social Science	358	17.243	358	18.126	.883	7.31	.0070
Basic Science	183	18.978	183	20.617	1.639	16.22	.0001
Education	126	14.294	126	15.278	.984	3.52	.0620
Arts	25	16.680	25	16.320	-.360	.10	.7477
Bus. Adm.	47	16.936	47	16.383	-.553	.37	.5433
Estheticism							
Preprof. (1)	81	11.827	81	12.235	.408	.27	.6020
Preprof. (2)	89	12.011	89	12.573	.562	.63	.4268
Humanities	264	14.841	264	16.992	2.151	40.21	.0000
Social Science	362	12.566	362	14.232	1.666	21.51	.0000
Basic Science	186	11.344	186	12.005	.661	1.90	.1691
Education	129	12.705	129	14.171	1.466	7.16	.0079
Arts	26	15.269	26	18.231	2.962	5.49	.0231
Bus. Adm.	47	8.575	47	9.277	.702	.64	.4249
Complexity							
Preprof. (1)	81	13.321	81	13.877	.556	.59	.4420
Preprof. (2)	87	11.115	87	11.287	.172	.07	.7949
Humanities	262	13.733	262	15.687	1.954	19.24	.0000
Social Science	360	14.072	360	16.136	2.064	33.87	.0000
Basic Science	186	13.737	186	13.844	.107	.05	.8260
Education	128	11.719	128	11.930	.211	.15	.6955
Arts	26	14.462	26	17.346	2.884	4.73	.0345
Bus. Adm.	47	11.766	47	13.000	1.234	1.92	.1694
Autonomy							
Preprof. (1)	81	21.037	81	26.519	5.482	43.51	.0000
Preprof. (2)	87	16.747	87	24.264	7.517	79.00	.0000
Humanities	262	21.519	262	28.034	6.515	212.47	.0000
Social Science	357	21.966	357	28.714	6.747	323.87	.0000
Basic Science	183	20.514	183	26.448	5.934	98.21	.0000
Education	126	18.905	126	24.937	6.032	88.10	.0000
Arts	25	21.960	25	27.720	5.760	13.50	.0006
Bus. Adm.	47	20.021	47	24.532	4.511	19.07	.0000

TABLE 33. Continued

Religious Orient.							
Preprof. (1)	80	12.750	80	15.762	3.012	13.08	.0004
Preprof. (2)	87	9.276	87	12.161	2.885	13.57	.0003
Humanities	261	13.467	261	17.195	3.728	72.83	.0000
Social Science	356	14.463	356	18.376	3.913	116.34	.0000
Basic Science	186	13.172	186	16.699	3.527	39.20	.0000
Education	129	12.039	129	15.031	2.992	23.56	.0000
Arts	25	13.240	25	17.480	4.240	10.30	.0024
Bus. Adm.	47	12.553	47	15.872	3.319	6.95	.0099
Impulse Exp.							
Preprof. (1)	81	15.025	81	16.667	1.642	4.34	.0388
Preprof. (2)	88	11.966	88	13.682	1.716	5.52	.0200
Humanities	262	14.786	262	17.481	2.695	32.90	.0000
Social Science	361	15.205	361	17.900	2.695	51.18	.0000
Basic Science	184	13.636	184	15.582	1.946	13.69	.0002
Education	126	12.984	126	14.825	1.841	8.32	.0043
Arts	25	16.640	25	19.680	3.040	5.26	.0262
Bus. Adm.	47	15.979	47	17.553	1.574	2.61	.1094
Theoretical							
Preprof. (1)	80	3.175	80	2.887	-.288	1.35	.2462
Preprof. (2)	83	3.687	83	3.711	.024	.01	.9129
Humanities	255	3.427	255	3.329	-.098	.60	.4405
Social Science	352	3.122	352	3.028	-.094	.67	.4126
Basic Science	185	2.405	185	2.146	-.259	3.43	.0647
Education	122	3.910	122	3.639	-.271	2.23	.1366
Arts	21	3.333	21	3.428	.095	.06	.8082
Bus. Adm.	50	3.680	50	3.120	-.560	3.46	.0659
Economic							
Preprof. (1)	78	3.808	78	3.256	-.552	5.03	.0264
Preprof. (2)	84	3.905	84	3.774	-.131	.37	.5443
Humanities	255	4.388	255	4.208	-.180	2.42	.1208
Social Science	352	3.810	352	3.642	-.168	1.92	.1660
Basic Science	187	3.770	187	3.700	-.070	.18	.6704
Education	122	4.000	122	3.631	-.369	5.06	.0253
Arts	20	3.850	20	4.200	.350	.52	.4758
Bus. Adm.	50	2.820	50	1.920	-.900	12.02	.0008
Aesthetic							
Preprof. (1)	78	3.782	78	4.013	.231	1.15	.2854
Preprof. (2)	87	3.793	87	3.414	-.379	3.08	.0810
Humanities	257	3.066	257	2.510	-.556	20.95	.0000
Social Science	349	3.739	349	3.410	-.329	8.95	.0029
Basic Science	185	3.848	185	3.513	-.335	5.49	.0196
Education	121	3.438	121	2.992	-.446	7.21	.0077
Arts	20	2.500	20	1.950	-.550	1.85	.1812
Bus. Adm.	48	4.521	48	4.875	.354	1.92	.1689

TABLE 33. Continued

Social							
Preprof. (1)	79	2.114	79	1.924	-.190	.86	.3563
Preprof. (2)	88	1.784	88	1.557	-.227	1.97	.1621
Humanities	257	1.720	257	1.587	-.133	2.18	.1404
Social Science	354	2.150	354	1.887	-.263	7.65	.0058
Basic Science	186	2.435	186	2.167	-.268	4.06	.0445
Education	124	1.443	124	1.202	-.241	7.53	.0065
Arts	21	2.333	21	1.762	-.571	2.61	.1138
Bus. Adm.	50	1.880	50	2.540	.660	10.49	.0016
Political							
Preprof. (1)	77	4.273	77	4.376	.103	.17	.6806
Preprof. (2)	83	4.988	83	5.072	.084	.19	.6646
Humanities	254	4.866	254	4.642	-.224	4.56	.0332
Social Science	352	4.060	352	3.886	-.174	2.18	.1404
Basic Science	185	4.724	185	4.730	.006	.00	.9664
Education	121	5.149	121	5.116	-.033	.05	.8176
Arts	20	5.250	20	4.800	-.450	1.35	.2523
Bus. Adm.	48	4.333	48	3.812	-.521	2.83	.0956
Religious							
Preprof. (1)	77	3.636	77	4.532	.896	10.19	.0017
Preprof. (2)	88	2.682	88	3.500	.818	11.07	.0011
Humanities	257	3.502	257	4.685	1.183	72.16	.0000
Social Science	352	3.935	352	5.091	1.156	95.12	.0000
Basic Science	186	3.742	186	4.677	.935	28.19	.0000
Education	122	3.049	122	4.401	1.352	49.72	.0000
Arts	20	3.600	20	4.800	1.200	6.22	.0171
Bus. Adm.	48	3.667	48	4.667	1.000	7.74	.0065
Career							
Preprof. (1)	89	3.337	89	3.247	-.090	.81	.3703
Preprof. (2)	92	2.772	92	2.739	-.033	.12	.7254
Humanities	275	2.829	275	2.811	-.018	.08	.7759
Social Science	377	3.061	377	3.048	-.013	.06	.8001
Basic Science	194	3.258	194	3.077	-.181	7.76	.0056
Education	134	2.574	134	2.582	.008	.01	.9292
Arts	27	2.704	27	3.000	.296	2.23	.1413
Bus. Adm.	50	3.300	50	3.200	-.100	.67	.4146
Religion							
Preprof. (1)	88	2.318	88	2.057	-.261	3.23	.0739
Preprof. (2)	93	2.806	93	2.527	-.279	4.79	.0299
Humanities	272	2.316	272	1.790	-.526	46.74	.0000
Social Science	377	2.212	377	1.690	-.522	58.54	.0000
Basic Science	195	2.323	195	1.872	-.451	22.24	.0000
Education	134	2.537	134	2.097	-.440	19.30	.0000
Arts	27	2.259	27	1.741	-.518	4.92	.0310
Bus. Adm.	49	2.449	49	2.041	-.408	5.44	.0218

TABLE 33. Continued

Marriage							
Preprof.(1)	89	3.472	89	3.663	.191	3.66	.0573
Preprof.(2)	93	3.796	93	3.828	.032	.23	.6306
Humanities	277	3.635	277	3.660	.025	.20	.6523
Social Science	380	3.510	380	3.523	.013	.06	.8048
Basic Science	194	3.412	194	3.556	.144	4.62	.0323
Education	133	3.797	133	3.902	.105	4.50	.0349
Arts	27	3.556	27	3.741	.185	1.21	.2759
Bus. Adm.	50	3.540	50	3.540	.000	.00	1.0000
Family							
Preprof.(1)	88	3.329	88	2.432	-.897	58.74	.0000
Preprof.(2)	92	3.663	92	2.772	-.891	86.64	.0000
Humanities	277	3.473	277	2.505	-.968	215.37	.0000
Social Science	379	3.364	379	2.483	-.881	235.53	.0000
Basic Science	195	3.205	195	2.385	-.820	127.38	.0000
Education	132	3.757	132	2.788	-.969	165.41	.0000
Arts	27	3.296	27	2.666	-.630	7.40	.0089
Bus. Adm.	50	3.460	50	2.600	-.860	42.72	.0000
Ideas							
Preprof.(1)	88	2.886	88	2.727	-.159	2.14	.1448
Preprof.(2)	92	2.554	92	2.565	.011	.01	.9134
Humanities	276	3.047	276	3.058	.011	.03	.8569
Social Science	381	2.926	381	2.976	.050	.90	.3435
Basic Science	194	2.809	194	2.804	-.005	.01	.9442
Education	134	2.701	134	2.664	-.037	.22	.6411
Arts	27	2.926	27	2.926	.000	.00	1.0000
Bus. Adm.	49	2.551	49	2.490	-.061	.20	.6568
Friendships							
Preprof.(1)	89	2.786	89	2.753	-.033	.12	.7247
Preprof.(2)	93	2.731	93	2.914	.183	3.88	.0502
Humanities	276	2.946	276	3.054	.108	4.03	.0451
Social Science	380	2.911	380	3.037	.126	6.63	.0102
Basic Science	195	2.764	195	2.825	.061	.83	.3637
Education	134	2.843	134	3.127	.284	14.25	.0002
Arts	27	2.926	27	3.000	.074	.16	.6894
Bus. Adm.	50	2.960	50	2.880	-.080	.42	.5177
Citizen							
Preprof.(1)	89	2.348	89	2.247	-.101	.72	.3963
Preprof.(2)	93	2.366	93	2.344	-.022	.06	.8047
Humanities	275	2.327	275	2.271	-.056	.81	.3688
Social Science	380	2.476	380	2.452	-.024	.01	.9261
Basic Science	194	2.170	194	2.253	.083	1.30	.2550
Education	133	2.338	133	2.425	.087	1.42	.2338
Arts	27	2.407	27	2.148	-.259	1.82	.1832
Bus. Adm.	50	2.360	50	2.470	.110	.51	.4764

TABLE 33. Continued

Arts							
Preprof.(1)	88	2.114	88	2.227	.113	.90	.3451
Preprof.(2)	93	1.978	93	2.258	.280	7.98	.0052
Humanities	270	2.559	270	2.859	.300	18.94	.0000
Social Science	379	2.258	379	2.464	.206	12.16	.0005
Basic Science	195	2.097	195	2.277	.180	5.39	.0208
Education	134	2.172	134	2.537	.365	16.28	.0001
Arts	27	2.629	27	3.037	.408	3.13	.0829
Bus. Adm.	50	1.820	50	1.860	.040	.10	.7531
National							
Preprof.(1)	88	2.170	88	2.034	-.136	.98	.3237
Preprof.(2)	93	2.021	93	1.795	-.226	4.79	.0299
Humanities	275	2.131	275	2.149	.018	.06	.8006
Social Science	378	2.402	378	2.373	-.029	.20	.6559
Basic Science	195	1.938	195	1.918	-.020	.06	.7977
Education	131	1.946	131	1.824	-.122	2.02	.1561
Arts	27	2.111	27	2.111	.000	.00	1.0000
Bus. Adm.	50	2.140	50	2.080	-.060	.14	.7106

TABLE 34. 1966-67 Freshman-Senior Longitudinal Data
Pre-test Variance, Post-test Variance, and Change in Variance

Measure	Pre-test Variance N	Pre-test Variance Variance	Post-test Variance N	Post-test Variance Variance	Change in Variance Gain	F Ratio	Signif. Level
Thinking Intr.							
Preprof.(1)	795	19.071	88	20.948	1.871	.35	.5537
Preprof.(2)	372	20.234	94	27.840	7.606	4.01	.0452
Humanities	609	15.587	275	18.922	3.335	3.63	.0568
Social Science	593	16.148	384	20.184	4.036	5.86	.0155
Basic Science	766	21.348	197	23.160	1.812	.53	.4687
Education	223	22.553	136	18.543	-4.010	1.58	.2092
Arts	61	12.571	26	19.835	7.264	1.91	.1668
Bus. Adm.	146	18.353	52	19.406	1.053	.06	.8084
Theor. Orient.							
Preprof.(1)	792	19.625	88	20.059	.434	.02	.8911
Preprof.(2)	370	18.532	93	20.433	1.901	.36	.5505
Humanities	608	16.305	274	22.614	6.309	10.45	.0012
Social Science	591	17.137	382	21.265	4.128	5.46	.0194
Basic Science	762	16.419	194	17.288	.869	.21	.6497
Education	221	19.003	134	18.235	-.768	.07	.7912
Arts	61	14.872	26	17.602	2.730	.25	.6154
Bus. Adm.	146	16.716	52	19.211	2.495	.37	.5427
Estheticism							
Preprof.(1)	797	22.300	89	27.796	5.496	2.03	.1541
Preprof.(2)	372	18.474	95	24.950	6.476	3.58	.0586
Humanities	611	17.584	276	15.894	-1.690	.95	.3289
Social Science	593	20.272	383	25.656	5.384	6.53	.0106
Basic Science	767	20.525	197	21.519	.994	.18	.6750
Education	223	20.182	136	17.796	-2.386	.66	.4181
Arts	61	15.877	26	19.865	3.988	.45	.5026
Bus. Adm.	147	18.454	52	17.362	-1.092	.07	.7925
Complexity							
Preprof.(1)	795	19.862	89	22.933	3.071	.85	.3572
Preprof.(2)	372	19.032	93	23.032	4.000	1.39	.2389
Humanities	610	23.339	274	30.937	7.598	7.73	.0054
Social Science	592	23.088	383	27.485	4.397	3.56	.0591
Basic Science	766	20.747	197	25.116	4.369	2.95	.0858
Education	223	17.077	135	21.215	4.138	1.99	.1580
Arts	61	20.730	26	29.595	8.865	1.15	.2830
Bus. Adm.	146	18.044	52	18.982	.938	.05	.8257
Autonomy							
Preprof.(1)	790	32.700	89	25.771	-6.929	2.10	.1474
Preprof.(2)	370	36.604	93	30.399	-6.205	1.22	.2696
Humanities	609	34.236	274	22.271	-11.965	16.38	.0001
Social Science	590	33.809	381	23.173	-10.636	15.94	.0001
Basic Science	760	33.216	195	31.327	-1.889	.26	.6092
Education	221	31.030	134	28.148	-2.882	.39	.5327
Arts	61	29.749	25	27.793	-1.956	.04	.8442
Bus. Adm.	145	23.798	52	26.018	2.220	.15	.6978

TABLE 34. Continued

Religious Orient.							
Preprof. (1)	792	32.106	88	33.511	1.405	.07	.7878
Preprof. (2)	370	24.256	93	25.910	1.654	.16	.6875
Humanities	609	28.405	275	24.086	-4.319	2.51	.1131
Social Science	588	27.685	381	22.012	-5.673	5.95	.0147
Basic Science	762	32.754	197	31.581	-1.173	.10	.7484
Education	221	29.339	136	26.778	-2.561	.35	.5567
Arts	61	30.546	26	18.875	-11.671	1.87	.1710
Bus. Adm.	145	21.921	52	37.431	15.510	5.78	.0162
Impulse Exp.							
Preprof. (1)	790	26.781	89	29.368	2.587	.34	.5578
Preprof. (2)	370	31.482	94	24.758	-6.724	2.03	.1537
Humanities	609	26.386	274	36.667	10.281	10.58	.0011
Social Science	590	24.943	385	29.658	4.715	3.52	.0607
Basic Science	761	24.478	196	32.117	7.639	6.02	.0141
Education	222	29.609	134	29.685	.076	.00	.9869
Arts	61	22.349	26	25.046	2.697	.11	.7350
Bus. Adm.	145	24.950	52	22.167	-2.783	.26	.6125
Theoretical							
Preprof. (1)	851	2.547	111	2.234	-.313	.81	.3693
Preprof. (2)	392	2.077	95	2.035	-.042	.02	.9003
Humanities	629	2.259	281	1.771	-.488	5.54	.0186
Social Science	616	2.318	390	2.183	-.135	.43	.5119
Basic Science	800	2.377	203	1.498	-.879	15.60	.0001
Education	226	2.007	136	1.865	-.142	.22	.6368
Arts	65	2.400	31	1.658	-.742	1.31	.2518
Bus. Adm.	158	2.165	60	1.874	-.291	.43	.5102
Economic							
Preprof. (1)	846	2.374	111	2.141	-.233	.51	.4765
Preprof. (2)	390	1.831	95	1.898	.067	.05	.8256
Humanities	623	1.761	281	1.631	-.130	.56	.4525
Social Science	611	2.174	389	2.487	.313	2.17	.1412
Basic Science	793	2.365	203	2.357	-.008	.00	.9764
Education	225	1.762	136	1.509	-.253	1.00	.3185
Arts	64	1.781	31	1.598	-.183	.12	.7321
Bus. Adm.	158	1.958	60	1.521	-.437	1.31	.2524
Aesthetic							
Preprof. (1)	845	2.387	111	1.937	-.450	2.01	.1565
Preprof. (2)	394	1.782	95	1.942	.160	.28	.5942
Humanities	629	2.064	281	1.672	-.392	4.17	.0411
Social Science	612	2.181	389	1.913	-.268	2.02	.1552
Basic Science	794	2.235	202	1.822	-.413	3.21	.0733
Education	231	1.931	136	1.501	-.430	2.63	.1052
Arts	64	1.904	31	1.316	-.588	1.30	.2536
Bus. Adm.	155	2.371	60	1.155	-1.216	9.73	.0018

TABLE 34. Continued

Social							
Preprof. (1)	852	1.635	111	1.694	.059	.06	.8020
Preprof. (2)	400	.786	95	1.016	.230	2.63	.1050
Humanities	634	1.164	281	.949	-.215	3.93	.0474
Social Science	620	1.420	389	1.293	-.127	1.03	.3107
Basic Science	805	1.954	202	1.394	-.560	8.55	.0035
Education	232	.609	137	.315	-.294	17.22	.0000
Arts	64	1.668	31	.929	-.739	3.18	.0747
Bus. Adm.	158	1.503	60	1.167	-.336	1.31	.2523
Political							
Preprof. (1)	842	2.251	111	1.983	-.268	.75	.3854
Preprof. (2)	387	1.116	95	1.363	.247	1.57	.2096
Humanities	619	1.603	281	1.261	-.342	5.35	.0208
Social Science	614	2.876	389	2.251	-.625	6.99	.0082
Basic Science	792	1.860	203	1.403	-.457	6.03	.0141
Education	225	1.393	136	1.026	-.367	3.80	.0511
Arts	64	1.651	31	1.581	-.070	.02	.8909
Bus. Adm.	157	2.536	60	2.173	-.363	.50	.4812
Religious							
Preprof. (1)	845	3.199	111	2.466	-.733	3.07	.0797
Preprof. (2)	395	2.150	95	2.891	.741	3.51	.0608
Humanities	620	2.700	281	2.272	-.428	2.79	.0946
Social Science	611	2.802	389	1.905	-.897	17.07	.0000
Basic Science	798	3.091	203	2.457	-.634	4.06	.0440
Education	229	2.443	136	2.475	.032	.01	.9320
Arts	63	3.566	31	2.026	-1.540	2.96	.0853
Bus. Adm.	155	2.667	60	2.640	-.027	.00	.9623
Career							
Preprof. (1)	858	.403	123	.448	.045	.62	.4329
Preprof. (2)	399	.453	100	.370	-.083	1.56	.2114
Humanities	638	.571	299	.573	.002	.00	.9791
Social Science	632	.560	411	.551	-.009	.03	.8575
Basic Science	808	.450	211	.454	.004	.01	.9388
Education	236	.387	145	.529	.142	4.41	.0357
Arts	67	.785	40	.379	-.406	5.94	.0148
Bus. Adm.	157	.403	61	.413	.010	.01	.9111
Religion							
Preprof. (1)	855	.837	122	.793	-.044	.15	.6963
Preprof. (2)	400	.680	100	.796	.116	1.01	.3153
Humanities	637	.925	299	.740	-.185	4.92	.0266
Social Science	632	.890	410	.715	-.175	1.08	.2984
Basic Science	807	.947	211	.812	-.135	1.92	.1658
Education	234	.646	145	.610	-.036	.14	.7034
Arts	67	.889	40	.676	-.213	.89	.3468
Bus. Adm.	158	.631	61	.829	.198	1.67	.1956

TABLE 34. Continued

Marriage							
Preprof. (1)	854	.454	123	.373	-.081	1.98	.1594
Preprof. (2)	400	.263	100	.216	-.047	1.42	.2334
Humanities	638	.452	300	.382	-.070	2.81	.0937
Social Science	632	.544	412	.522	-.022	.22	.6416
Basic Science	807	.516	211	.373	-.143	8.17	.0042
Education	235	.156	145	.137	-.019	.71	.3980
Arts	67	.767	39	.394	-.373	4.92	.0265
Bus. Adm.	158	.394	61	.354	-.040	.24	.6216
Family							
Preprof. (1)	855	.547	122	.464	-.083	1.40	.2367
Preprof. (2)	401	.355	99	.536	.181	7.17	.0094
Humanities	639	.632	301	.564	-.068	1.31	.2526
Social Science	631	.693	412	.611	-.082	1.98	.1591
Basic Science	807	.622	211	.452	-.170	7.93	.0049
Education	235	.201	145	.490	.289	36.51	.0000
Arts	67	.805	40	.461	-.344	3.55	.0595
Bus. Adm.	157	.429	61	.354	-.075	.79	.3744
Ideas							
Preprof. (1)	855	.531	122	.528	-.003	.00	.9628
Preprof. (2)	399	.481	100	.433	-.048	.43	.5112
Humanities	641	.515	300	.488	-.027	.29	.5921
Social Science	632	.523	413	.524	.001	.00	.9814
Basic Science	807	.515	211	.558	.043	.53	.4677
Education	235	.480	145	.398	-.082	1.52	.2170
Arts	67	.437	40	.564	.127	.80	.3708
Bus. Adm.	157	.495	61	.420	-.075	.56	.4532
Friendships							
Preprof. (1)	857	.458	123	.389	-.069	1.36	.2428
Preprof. (2)	379	.364	100	.365	.001	.00	.9793
Humanities	639	.426	300	.434	.008	.03	.8552
Social Science	632	.431	413	.453	.022	.32	.5729
Basic Science	810	.459	211	.434	-.025	.26	.6134
Education	235	.468	145	.390	-.078	1.44	.2303
Arts	67	.451	40	.407	-.044	.12	.7267
Bus. Adm.	156	.451	61	.384	-.067	.55	.4581
Citizen							
Preprof. (1)	855	.492	123	.557	.065	.85	.3580
Preprof. (2)	400	.390	100	.348	-.042	.51	.4741
Humanities	639	.525	300	.502	-.023	.20	.6510
Social Science	631	.605	411	.596	-.009	1.23	.2672
Basic Science	811	.488	210	.591	.103	3.15	.0759
Education	235	.507	144	.381	-.126	3.53	.0602
Arts	67	.442	40	.523	.081	.35	.5566
Bus. Adm.	158	.492	61	.554	.062	.31	.5799

TABLE 34. Continued

Arts							
Preprof. (1)	856	.614	122	.546	-.068	.71	.3992
Preprof. (2)	398	.483	100	.513	.030	.14	.7039
Humanities	638	.739	298	.611	-.128	3.57	.0589
Social Science	632	.626	411	.625	-.001	.00	.9863
Basic Science	806	.659	211	.624	-.035	.25	.6181
Education	235	.529	145	.498	-.031	.16	.6883
Arts	67	.680	40	.615	-.065	.12	.7300
Bus. Adm.	157	.694	61	.370	-.324	7.68	.0056
National							
Preprof. (1)	855	.695	122	.684	-.011	.01	.9079
Preprof. (2)	399	.511	100	.430	-.081	1.13	.2870
Humanities	636	.774	300	.696	-.078	1.13	.2883
Social Science	629	.883	411	.854	-.029	.13	.7176
Basic Science	807	.606	211	.636	.030	.20	.6547
Education	236	.585	144	.359	-.226	10.13	.0015
Arts	67	.646	40	.613	-.033	.03	.8552
Bus. Adm.	156	.658	61	.629	-.029	.04	.8344

TABLE 35. 1966-67 Freshman-Senior Panel Data
Pre-test Variance, Post-test Variance, and Change in Variance

Measure	Pre-test Variance N	Pre-test Variance Variance	Post-test Variance N	Post-test Variance Variance	Change in Variance Gain	F Ratio	Signif. Level
Thinking Intr.							
Preprof. (1)	80	18.975	80	21.518	2.543	.31	.5774
Preprof. (2)	88	19.454	88	29.104	9.650	3.49	.0619
Humanities	263	14.465	263	18.762	4.297	4.41	.0357
Social Science	362	14.918	362	20.036	5.118	7.81	.0052
Basic Science	186	18.523	186	23.406	4.883	2.52	.1125
Education	129	16.111	129	19.314	3.203	1.05	.3064
Arts	26	14.986	26	19.835	4.849	.48	.4885
Bus. Adm.	47	17.183	47	21.123	3.940	.48	.4867
Theor. Orient.							
Preprof. (1)	80	17.782	80	18.088	.306	.01	.9396
Preprof. (2)	87	14.251	87	20.553	6.302	2.85	.0914
Humanities	262	15.183	262	22.587	7.404	10.21	.0014
Social Science	358	16.285	358	21.869	5.584	7.72	.0055
Basic Science	183	13.164	183	17.161	3.997	3.18	.0746
Education	126	15.857	126	18.858	3.001	.93	.3338
Arts	25	13.060	25	17.893	4.833	.58	.4462
Bus. Adm.	47	19.235	47	19.415	.180	.00	.9749
Estheticism							
Preprof. (1)	81	20.170	81	29.057	8.887	2.63	.1046
Preprof. (2)	89	19.329	89	24.952	5.623	1.42	.2330
Humanities	264	15.199	264	15.194	-.005	.00	.9978
Social Science	362	20.723	362	25.974	5.251	4.59	.0322
Basic Science	186	20.940	186	21.908	.968	.09	.7590
Education	129	20.303	129	18.361	-1.942	.32	.5704
Arts	26	21.645	26	19.865	-1.780	.05	.8318
Bus. Adm.	47	17.728	47	18.335	.607	.01	.9096
Complexity							
Preprof. (1)	81	19.071	81	23.010	3.939	.70	.4029
Preprof. (2)	87	15.359	87	22.812	7.453	3.32	.0683
Humanities	262	20.756	262	31.250	10.494	10.83	.0010
Social Science	360	18.184	360	27.093	8.909	14.16	.0002
Basic Science	186	18.898	186	25.549	6.651	4.18	.0410
Education	128	15.873	128	21.231	5.358	2.67	.1025
Arts	26	16.178	26	29.595	13.417	2.20	.1379
Bus. Adm.	47	17.270	47	20.043	2.773	.25	.6156
Autonomy							
Preprof. (1)	81	29.686	81	26.253	-3.433	.30	.5838
Preprof. (2)	87	31.028	87	31.197	.169	.00	.9800
Humanities	262	29.921	262	22.424	-7.497	5.40	.0201
Social Science	357	28.117	357	22.075	-6.042	5.19	.0227
Basic Science	183	34.163	183	31.457	-2.706	.31	.5784
Education	126	25.975	126	26.060	.085	.00	.9854
Arts	25	33.623	25	27.793	-5.830	.21	.6446
Bus. Adm.	47	24.934	47	25.211	.277	.00	.9703

TABLE 35. Continued

Religious Orient.							
Preprof. (1)	80	23.152	80	32.361	9.209	2.19	.1389
Preprof. (2)	87	27.109	87	26.253	-.856	.02	.8820
Humanities	261	25.373	261	24.435	-.938	.09	.7615
Social Science	356	25.247	356	21.604	-3.643	2.15	.1427
Basic Science	186	28.349	186	30.676	2.327	.29	.5920
Education	129	22.288	129	26.733	4.445	1.05	.3048
Arts	25	24.440	25	19.177	-5.263	.34	.5571
Bus. Adm.	47	34.166	47	40.375	6.209	.32	.5735
Impulse Expression							
Preprof. (1)	81	20.324	81	30.000	9.676	2.99	.0835
Preprof. (2)	88	22.838	88	24.127	1.289	.07	.7984
Humanities	262	21.395	262	36.435	15.040	18.24	.0000
Social Science	361	21.102	361	30.140	9.038	11.36	.0008
Basic Science	184	19.249	184	31.633	12.384	11.14	.0008
Education	126	20.160	126	31.185	11.025	5.88	.0153
Arts	25	17.907	25	25.977	8.070	.81	.3685
Bus. Adm.	47	21.369	47	23.209	1.840	.08	.7806
Theoretical							
Preprof. (1)	80	2.551	80	2.329	-.222	.16	.6863
Preprof. (2)	83	2.023	83	1.988	-.035	.01	.9388
Humanities	255	2.316	255	1.796	-.520	4.08	.0433
Social Science	352	2.444	352	2.159	-.285	1.35	.2459
Basic Science	185	2.155	185	1.473	-.682	6.60	.0102
Education	122	2.132	122	1.869	-.263	.52	.4693
Arts	21	2.133	21	1.057	-1.076	2.36	.1247
Bus. Adm.	50	2.712	50	1.822	-.890	1.91	.1675
Economic							
Preprof. (1)	78	2.599	78	2.115	-.484	.81	.3682
Preprof. (2)	84	1.991	84	1.912	-.079	.03	.8546
Humanities	255	1.766	255	1.669	-.097	.20	.6537
Social Science	352	2.616	352	2.527	-.089	.10	.7451
Basic Science	187	2.576	187	2.404	-.172	.22	.6391
Education	122	1.735	122	1.540	-.195	.43	.5131
Arts	20	2.766	20	1.958	-.808	.55	.4585
Bus. Adm.	50	1.906	50	1.463	-.443	.85	.3578
Aesthetic							
Preprof. (1)	78	1.731	78	1.883	.152	.14	.7131
Preprof. (2)	87	2.189	87	1.873	-.316	.52	.4714
Humanities	257	2.077	257	1.720	-.357	2.28	.1309
Social Science	349	2.343	349	1.892	-.451	3.96	.0466
Basic Science	185	2.010	185	1.773	-.237	.72	.3962
Education	121	1.865	121	1.475	-.390	1.64	.2003
Arts	20	1.737	20	1.524	-.213	.08	.7783
Bus. Adm.	48	2.127	48	1.005	-1.122	6.39	.0115

TABLE 35. Continued

Social							
Preprof. (1)	79	1.923	79	1.404	-.519	1.90	.1676
Preprof. (2)	88	1.252	88	1.054	-.198	.64	.4249
Humanities	257	1.124	257	.939	-.185	2.08	.1493
Social Science	354	1.873	354	1.319	-.554	10.79	.0010
Basic Science	186	1.912	186	1.394	-.518	4.59	.0321
Education	124	.655	124	.309	-.346	16.97	.0000
Arts	21	1.733	21	.890	-.843	2.13	.1449
Bus. Adm.	50	.802	50	1.274	.472	2.58	.1083
Political							
Preprof. (1)	77	2.859	77	2.027	-.832	2.22	.1363
Preprof. (2)	83	1.695	83	1.434	-.261	.57	.4502
Humanities	254	1.563	254	1.243	-.320	3.31	.0687
Social Science	352	2.632	352	2.221	-.411	2.52	.1121
Basic Science	185	1.646	185	1.405	-.241	1.15	.2827
Education	121	1.461	121	1.020	-.441	3.84	.0500
Arts	20	1.460	20	1.537	.077	.01	.9128
Bus. Adm.	48	2.270	48	2.326	.056	.01	.9334
Religious							
Preprof. (1)	77	3.208	77	2.857	-.351	.25	.6151
Preprof. (2)	88	2.403	88	2.919	.516	.82	.3660
Humanities	257	2.704	257	2.279	-.425	1.86	.1721
Social Science	352	3.030	352	1.918	-1.112	18.18	.0000
Basic Science	186	3.241	186	2.533	-.708	2.79	.0946
Education	122	2.146	122	2.341	.195	.23	.6329
Arts	20	2.884	20	1.747	-1.137	1.15	.2835
Bus. Adm.	48	3.248	48	2.950	-.298	.11	.7430
Career							
Preprof. (1)	89	.453	89	.438	-.015	.02	.8744
Preprof. (2)	92	.442	92	.348	-.094	1.26	.2612
Humanities	275	.551	275	.570	.019	.08	.7795
Social Science	377	.472	377	.561	.089	2.81	.0939
Basic Science	194	.368	194	.445	.077	1.70	.1920
Education	134	.442	134	.501	.059	.52	.4709
Arts	27	.678	27	.385	-.293	2.02	.1549
Bus. Adm.	50	.296	50	.449	.153	2.09	.1480
Religion							
Preprof. (1)	88	.932	88	.928	-.004	.00	.9828
Preprof. (2)	93	.701	93	.817	.116	.54	.4645
Humanities	272	.844	272	.764	-.080	.67	.4114
Social Science	377	.843	377	.831	-.012	.03	.8591
Basic Science	195	.952	195	.834	-.118	.84	.3583
Education	134	.747	134	.600	-.147	1.59	.2069
Arts	27	.815	27	.661	-.154	.28	.5976
Bus. Adm.	49	.586	49	.915	.329	2.34	.1260

TABLE 35. Continued

Marriage							
Preprof. (1)	89	.570	89	.317	-.253	7.44	.0064
Preprof. (2)	93	.186	93	.231	.045	1.07	.3018
Humanities	277	.479	277	.392	-.087	2.78	.0955
Social Science	380	.546	380	.530	-.016	.09	.7684
Basic Science	194	.513	194	.362	-.151	5.82	.0159
Education	133	.224	133	.104	-.120	18.81	.0000
Arts	27	.564	27	.199	-.365	6.61	.0102
Bus. Adm.	50	.498	50	.376	-.122	.96	.3270
Family							
Preprof. (1)	88	.683	88	.524	-.159	1.52	.2180
Preprof. (2)	92	.314	92	.530	.216	6.14	.0132
Humanities	277	.641	277	.562	-.079	1.19	.2756
Social Science	379	.639	379	.610	-.029	.21	.6476
Basic Science	195	.597	195	.434	-.163	4.91	.0267
Education	132	.277	132	.474	.197	9.33	.0023
Arts	27	.986	27	.461	-.525	3.59	.0582
Bus. Adm.	50	.498	50	.367	-.131	1.12	.2891
Ideas							
Preprof. (1)	88	.492	88	.545	.053	.22	.6362
Preprof. (2)	92	.469	92	.446	-.023	.06	.8088
Humanities	276	.511	276	.491	-.020	.19	.7492
Social Science	381	.531	381	.523	-.008	.02	.8781
Basic Science	194	.497	194	.552	.055	.53	.4668
Education	134	.482	134	.375	-.107	2.07	.1507
Arts	27	.379	27	.456	.077	.22	.6409
Bus. Adm.	49	.503	49	.422	-.081	.36	.5462
Friendships							
Preprof. (1)	89	.465	89	.347	-.118	1.86	.1721
Preprof. (2)	93	.438	93	.362	-.076	.82	.3640
Humanities	276	.379	276	.430	.051	1.09	.2964
Social Science	380	.456	380	.457	.001	.00	.9764
Basic Science	195	.459	195	.433	-.026	.17	.6834
Education	134	.374	134	.382	.008	.02	.8967
Arts	27	.533	27	.385	-.148	.67	.4117
Bus. Adm.	50	.447	50	.312	-.135	1.57	.2101
Citizen							
Preprof. (1)	89	.616	89	.642	.026	.04	.8420
Preprof. (2)	93	.343	93	.358	.015	.04	.8334
Humanities	275	.513	275	.495	-.018	.06	.8113
Social Science	380	.546	380	.594	.048	2.67	.4152
Basic Science	194	.432	194	.584	.152	4.33	.0374
Education	133	.392	133	.366	-.026	.13	.7143
Arts	27	.558	27	.439	-.119	.37	.5430
Bus. Adm.	50	.398	50	.574	.176	1.70	.1921

TABLE 35. Continued

Arts							
Preprof. (1)	88	.700	88	.568	-.132	.93	.3348
Preprof. (2)	93	.369	93	.541	.172	3.34	.0678
Humanities	270	.679	270	.605	-.074	.89	.3445
Social Science	379	.705	379	.614	-.091	1.80	.1800
Basic Science	195	.573	195	.593	.020	.06	.8106
Education	134	.609	134	.491	-.118	1.54	.2145
Arts	27	.934	27	.498	-.436	2.48	.1156
Bus. Adm.	50	.436	50	.368	-.068	.35	.5518
National							
Preprof. (1)	88	.902	88	.769	-.133	.55	.4593
Preprof. (2)	93	.543	93	.447	-.096	.87	.3521
Humanities	275	.705	275	.718	.013	.02	.8787
Social Science	378	.771	378	.839	.068	.67	.4145
Basic Science	195	.625	195	.622	-.003	.00	.9737
Education	131	.605	131	.361	-.244	8.51	.0035
Arts	27	.872	27	.564	-.308	1.20	.2735
Bus. Adm.	50	.653	50	.646	-.007	.00	.9703

TABLE 36. 1966-67 Freshman-Senior Panel Data
Pre/Post and Pre/Gain Correlations for Individuals

Measure	Pre/Post Correlations				Pre/Gain Correlations			
	N	Corr.	T Stat.	Signif. Level	N	Corr.	T Stat.	Signif. Level
Thinking Intr.								
Preprof. (1)	80	.53	5.53	.0000	80	-.43	4.26	.0001
Preprof. (2)	88	.58	6.61	.0000	88	-.28	2.70	.0084
Humanities	263	.45	3.07	.0000	263	-.43	7.78	.0000
Social Science	362	.46	9.96	.0000	362	-.41	8.53	.0000
Basic Science	186	.53	8.55	.0000	186	-.39	5.72	.0000
Education	129	.46	5.77	.0000	129	-.46	5.79	.0000
Arts	26	.55	3.23	.0036	26	-.36	1.87	.0733
Bus. Adm.	47	.52	4.05	.0002	47	-.41	3.02	.0042
Theor. Orient.								
Preprof. (1)	80	.51	5.20	.0000	80	-.49	4.96	.0000
Preprof. (2)	87	.53	5.78	.0000	87	-.34	3.28	.0015
Humanities	262	.48	8.72	.0000	262	-.36	6.31	.0000
Social Science	358	.55	12.53	.0000	358	-.35	7.62	.0000
Basic Science	183	.55	8.76	.0000	183	-.37	5.30	.0000
Education	126	.44	5.47	.0000	126	-.47	5.90	.0000
Arts	25	.66	4.16	.0004	25	-.25	1.26	.2197
Bus. Adm.	47	.71	6.74	.0000	47	-.38	2.72	.0091
Estheticism								
Preprof. (1)	81	.58	6.35	.0000	81	-.30	2.75	.0073
Preprof. (2)	89	.69	8.97	.0000	89	-.25	2.42	.0176
Humanities	264	.59	11.82	.0000	264	-.45	8.23	.0000
Social Science	362	.58	13.57	.0000	362	-.36	7.27	.0000
Basic Science	186	.60	10.30	.0000	186	-.42	6.35	.0000
Education	129	.65	9.67	.0000	129	-.47	5.94	.0000
Arts	26	.60	3.66	.0012	26	-.49	2.72	.0119
Bus. Adm.	47	.70	6.55	.0000	47	-.37	2.67	.0106
Complexity								
Preprof. (1)	81	.47	4.68	.0000	81	-.45	4.47	.0000
Preprof. (2)	87	.52	5.62	.0000	87	-.33	3.24	.0017
Humanities	262	.63	13.05	.0000	262	-.23	3.85	.0001
Social Science	360	.49	10.63	.0000	360	-.35	7.15	.0000
Basic Science	186	.58	9.66	.0000	186	-.33	4.66	.0000
Education	128	.42	5.18	.0000	128	-.44	5.51	.0000
Arts	26	.37	1.92	.0665	26	-.37	1.97	.0607
Bus. Adm.	47	.44	3.27	.0021	47	-.48	3.66	.0007
Autonomy								
Preprof. (1)	81	.60	6.62	.0000	81	-.50	5.16	.0000
Preprof. (2)	87	.54	5.97	.0000	87	-.48	4.98	.0000
Humanities	262	.53	10.21	.0000	262	-.59	11.84	.0000
Social Science	357	.50	10.84	.0000	357	-.59	13.69	.0000
Basic Science	183	.68	12.33	.0000	183	-.45	6.69	.0000
Education	126	.61	8.61	.0000	126	-.44	5.44	.0000
Arts	25	.54	3.07	.0054	25	-.55	3.19	.0041
Bus. Adm.	47	.66	5.91	.0000	47	-.41	2.98	.0046

TABLE 36. Continued

Religious Orient.								
Preprof. (1)	80	.67	8.01	.0000	80	-.23	2.08	.0411
Preprof. (2)	87	.70	9.03	.0000	87	-.41	4.08	.0001
Humanities	261	.60	12.11	.0000	261	-.46	8.41	.0000
Social Science	356	.60	14.02	.0000	356	-.52	11.35	.0000
Basic Science	186	.67	12.36	.0000	186	-.36	5.28	.0000
Education	129	.62	8.87	.0000	129	-.35	4.22	.0000
Arts	25	.62	3.79	.0009	25	-.54	3.11	.0049
Bus. Adm.	47	.68	6.20	.0000	47	-.31	2.20	.032
Impulse Exp.								
Preprof. (1)	81	.49	4.99	.0000	81	-.36	3.40	.0011
Preprof. (2)	88	.68	8.66	.0000	88	-.37	3.68	.0004
Humanities	262	.58	11.42	.0000	262	-.22	3.72	.0002
Social Science	361	.55	12.49	.0000	361	-.32	6.50	.0000
Basic Science	184	.66	11.85	.0000	184	-.16	2.16	.0323
Education	126	.60	8.44	.0000	126	-.24	2.80	.0060
Arts	25	.65	4.14	.0004	25	-.23	1.12	.2737
Bus. Adm.	47	.49	3.74	.0005	47	-.48	3.63	.0007
Theoretical								
Preprof. (1)	80	.27	2.46	.0163	80	-.63	7.14	.0000
Preprof. (2)	83	.06	.57	.5670	83	-.69	8.52	.0000
Humanities	255	.25	4.19	.0000	255	-.67	14.49	.0000
Social Science	352	.30	5.83	.0000	352	-.63	15.02	.0000
Basic Science	185	.35	5.07	.0000	185	-.68	12.40	.0000
Education	122	.15	1.65	.1010	122	-.68	10.18	.0000
Arts	21	.20	.89	.3853	21	-.78	5.43	.0000
Bus. Adm.	50	.38	2.89	.0058	50	-.67	6.27	.0000
Economic								
Preprof. (1)	78	.20	1.82	.0731	78	-.68	8.05	.0000
Preprof. (2)	84	.48	4.99	.0000	84	-.52	5.56	.0000
Humanities	255	.32	5.28	.0000	255	-.60	11.96	.0000
Social Science	352	.49	10.42	.0000	352	-.52	11.37	.0000
Basic Science	187	.33	4.80	.0000	187	-.60	10.13	.0000
Education	122	.33	3.81	.0002	122	-.61	8.50	.0000
Arts	20	.69	4.07	.0007	20	-.57	2.92	.0092
Bus. Adm.	50	.30	2.15	.0364	50	-.66	6.13	.0000
Aesthetic								
Preprof. (1)	78	.33	3.07	.0029	78	-.55	5.79	.0000
Preprof. (2)	87	.43	4.36	.0000	87	-.59	6.66	.0000
Humanities	257	.32	5.34	.0000	257	-.64	13.17	.0000
Social Science	349	.35	6.92	.0000	349	-.63	15.19	.0000
Basic Science	185	.45	6.88	.0000	185	-.57	9.28	.0000
Education	121	.37	4.33	.0000	121	-.63	8.87	.0000
Arts	20	.73	4.50	.0003	20	-.44	2.10	.0499
Bus. Adm.	48	.41	3.04	.0039	48	-.75	7.77	.0000

TABLE 36. -Continued

Social								
Preprof. (1)	79	.39	3.69	.0004	79	-.65	7.45	.0000
Preprof. (2)	88	.35	3.42	.0010	88	-.62	7.35	.0000
Humanities	257	.39	6.67	.0000	257	-.61	12.27	.0000
Social Science	354	.31	6.04	.0000	354	-.68	17.45	.0000
Basic Science	186	.35	5.06	.0000	186	-.66	11.90	.0000
Education	124	.12	1.39	.1668	124	-.80	14.83	.0000
Arts	21	.27	1.21	.2396	21	-.76	5.10	.0001
Bus. Adm.	50	.35	2.57	.0132	50	-.43	3.29	.0019
Political								
Preprof. (1)	77	.42	3.96	.0002	77	-.65	7.35	.0000
Preprof. (2)	83	.31	2.97	.0039	83	-.63	7.33	.0000
Humanities	254	.37	6.23	.0000	254	-.63	12.90	.0000
Social Science	352	.35	7.08	.0000	352	-.62	14.70	.0000
Basic Science	185	.36	5.19	.0000	185	-.61	10.50	.0000
Education	121	.22	2.44	.0164	121	-.71	10.94	.0000
Arts	20	.35	1.59	.1288	20	-.55	2.83	.0112
Bus. Adm.	48	.27	1.89	.0649	48	-.60	5.06	.0000
Religious								
Preprof. (1)	77	.62	6.78	.0000	77	-.49	4.87	.0000
Preprof. (2)	88	.56	6.34	.0000	88	-.38	3.85	.0002
Humanities	257	.43	7.58	.0000	257	-.59	11.67	.0000
Social Science	352	.48	10.14	.0000	352	-.66	16.61	.0000
Basic Science	186	.55	8.89	.0000	186	-.57	9.46	.0000
Education	122	.61	8.44	.0000	122	-.40	4.80	.0000
Arts	20	.60	3.14	.0056	20	-.65	3.64	.0019
Bus, Adm.	48	.51	4.05	.0002	48	-.53	4.24	.0001
Career								
Preprof. (1)	89	.60	7.02	.0000	89	-.46	4.85	.0000
Preprof. (2)	92	.13	1.21	.2292	92	-.71	9.55	.0000
Humanities	275	.35	6.09	.0000	275	-.56	11.22	.0000
Social Science	377	.44	9.59	.0000	377	-.47	10.23	.0000
Basic Science	194	.40	6.02	.0000	194	-.49	7.73	.0000
Education	134	.42	5.29	.0000	134	-.50	6.59	.0000
Arts	27	.08	.38	.7089	27	-.78	6.28	.0000
Bus. Adm.	50	.45	3.47	.0011	50	-.38	2.82	.0070
Religion								
Preprof. (1)	88	.67	8.43	.0000	88	-.41	4.13	.0001
Preprof. (2)	93	.38	3.92	.0002	93	-.51	5.63	.0000
Humanities	272	.47	8.83	.0000	272	-.55	10.78	.0000
Social Science	377	.52	11.83	.0000	377	-.54	12.55	.0000
Basic Science	195	.65	11.83	.0000	195	-.48	7.66	.0000
Education	134	.39	4.92	.0000	134	-.62	9.03	.0000
Arts	27	.30	1.60	.1222	27	-.65	4.23	.0003
Bus. Adm.	49	.63	5.55	.0000	49	-.22	1.51	.1376

TABLE 36. Continued

Marriage								
Preprof. (1)	89	.30	2.91	.0045	89	-.74	10.19	.0000
Preprof. (2)	93	.25	2.44	.0165	93	-.56	6.40	.0000
Humanities	277	.40	7.22	.0000	277	-.61	12.78	.0000
Social Science	380	.37	7.62	.0000	380	-.57	13.58	.0000
Basic Science	194	.31	4.46	.0000	194	-.68	12.87	.0000
Education	133	.02	.21	.8377	133	-.82	16.58	.0000
Arts	27	.22	1.11	.2778	27	-.83	7.50	.0000
Bus. Adm.	50	.26	1.83	.0733	50	-.68	6.42	.0000
Family								
Preprof. (1)	88	.26	2.49	.0149	88	-.67	8.48	.0000
Preprof. (2)	92	.13	1.27	.2073	92	-.54	6.10	.0000
Humanities	277	.27	4.65	.0000	277	-.64	13.74	.0000
Social Science	379	.31	6.44	.0000	379	-.60	14.50	.0000
Basic Science	195	.30	4.37	.0000	195	-.68	12.71	.0000
Education	132	.03	.29	.7711	132	-.59	8.42	.0000
Arts	27	.10	.48	.6373	27	-.81	6.86	.0000
Bus. Adm.	50	.44	3.38	.0014	50	-.63	5.60	.0000
Ideas								
Preprof. (1)	89	.29	2.86	.0054	89	-.57	6.37	.0000
Preprof. (2)	92	.27	2.64	.0097	92	-.62	7.46	.0000
Humanities	276	.31	5.34	.0000	276	-.60	12.40	.0000
Social Science	381	.31	6.26	.0000	381	-.59	14.35	.0000
Basic Science	194	.25	3.65	.0003	194	-.58	9.95	.0000
Education	134	.28	3.29	.0013	134	-.67	10.25	.0000
Arts	27	.36	1.91	.0680	27	-.51	2.97	.0065
Bus. Adm.	49	.26	1.86	.0697	49	-.65	5.90	.0000
Friendships								
Preprof. (1)	89	.35	3.46	.0008	89	-.65	8.05	.0000
Preprof. (2)	93	.43	4.58	.0000	93	-.59	7.06	.0000
Humanities	276	.32	5.64	.0000	276	-.54	10.78	.0000
Social Science	380	.41	8.77	.0000	380	-.54	12.52	.0000
Basic Science	195	.39	5.93	.0000	195	-.57	9.63	.0000
Education	134	.27	3.24	.0015	134	-.60	8.56	.0000
Arts	27	.09	.43	.6735	27	-.74	5.48	.0000
Bus. Adm.	50	.31	2.30	.0260	50	-.68	6.45	.0000
Citizen								
Preprof. (1)	89	.48	5.04	.0000	89	-.50	5.34	.0000
Preprof. (2)	93	.26	2.54	.0128	93	-.60	7.12	.0000
Humanities	275	.25	4.24	.0000	275	-.62	13.06	.0000
Social Science	380	.40	8.38	.0000	380	-.52	11.86	.0000
Basic Science	194	.33	4.79	.0000	194	-.49	7.82	.0000
Education	133	.29	3.51	.0006	133	-.61	8.85	.0000
Arts	27	.11	.54	.5971	27	-.72	5.14	.0000
Bus. Adm.	50	-.05	.38	.7078	50	-.66	6.13	.0000

TABLE 36. Continued

Arts								
Preprof. (1)	88	.34	3.37	.0011	88	-.63	7.58	.0000
Preprof. (2)	93	.55	6.24	.0000	93	-.32	3.17	.0021
Humanities	270	.40	7.06	.0000	270	-.59	11.83	.0000
Social Science	379	.39	8.17	.0000	379	-.60	14.40	.0000
Basic Science	195	.33	4.92	.0000	195	-.57	9.57	.0000
Education	134	.27	3.22	.0016	134	-.66	10.07	.0000
Arts	27	.42	2.28	.0312	27	-.72	5.24	.0000
Bus. Adm.	50	.34	2.53	.0146	50	-.62	5.50	.0000
Social								
Preprof. (1)	88	.37	3.64	.0005	88	-.61	7.15	.0000
Preprof. (2)	93	.34	3.45	.0009	93	-.63	7.73	.0000
Humanities	275	.34	6.00	.0000	275	-.57	11.41	.0000
Social Science	378	.42	8.88	.0000	378	-.51	11.57	.0000
Basic Science	195	.30	4.33	.0000	195	-.59	10.26	.0000
Education	131	.16	1.85	.0665	131	-.75	13.04	.0000
Arts	27	.20	1.03	.3145	27	-.73	5.32	.0000
Bus. Adm.	50	.17	1.20	.2356	50	-.65	5.87	.0000